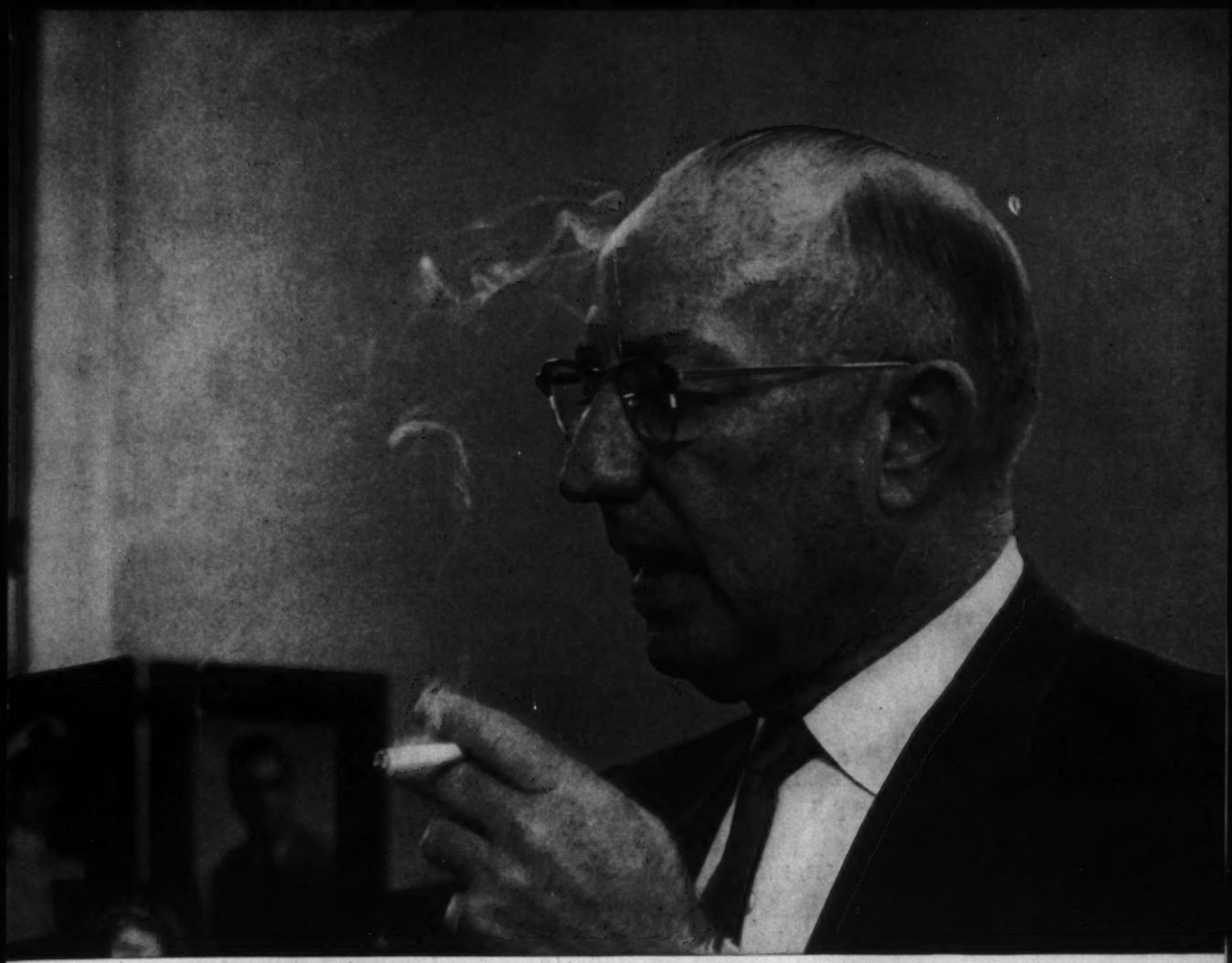
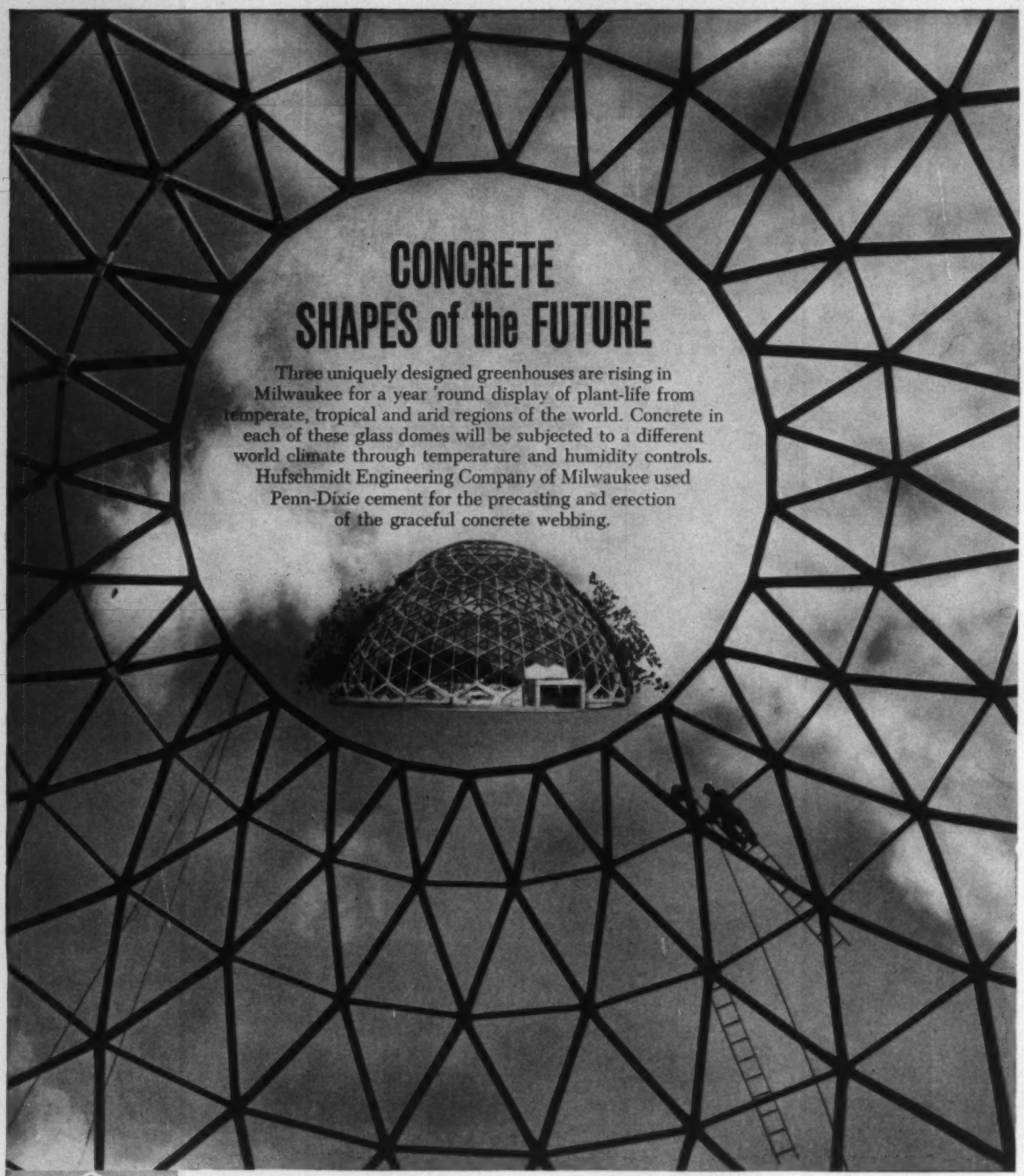
ENGINEERING NEWS-RECORD



C. J. Haggerty: New voice for labor p.88

A McGRAW-HILL PUBLICA

STEPHEN RICE
UNIVERSITY MICROFILMS INC EDITO
313 E EIGHT ST
ANN ARBOR MICH


CONCRETE
SHAPES of the FUTURE
Three uniquely designed greenhouses are rising in Milwaukee for a year 'round display of plant-life from temperate, tropical and arid regions of the world. Concrete in each of these glass domes will be subjected to a different world climate through temperature and humidity controls. Hufschmidt Engineering Company of Milwaukee used Penn-Dixie cement for the precasting and erection of the graceful concrete webbing.

PORTLAND PENN-DIXIE CEMENT

PENN-DIXIE CEMENT *Corporation*

REGULAR, HIGH EARLY STRENGTH AND MORTAR CEMENTS

OFFICES

Atlanta
Boston
Buffalo
Chicago
Des Moines
Detroit
Holland, Mich.
Milwaukee
Nazareth, Pa.
New York
Petoskey, Mich.
Philadelphia
Pittsburgh

PLANTS

Bath, Pa.
Nazareth, Pa.
Penn-Allen, Pa.
West Winfield, Pa.
Buffalo, N. Y.
Kingsport, Tenn.
Richard City, Tenn.
Clinchfield, Ga.
Des Moines, Iowa
Petoskey, Mich.

DISTRIBUTING PLANTS

Chicago
Milwaukee
Detroit
Holland, Mich.

Penn-Dixie means Permanent Dependability

Owner: *Milwaukee County Park Commission* • Architect: *Donald L. Grieb, Milwaukee* • General Contractor: *Stevens Construction Corp., Milwaukee*

A fable for rabbits
(and others)

Once, deep in the forest, there lived an industrious Beaver. He not only felled trees and built dams, but, on the land he cleared, he grew produce for a hungry family of rabbits. How they loved his fat, juicy carrots!

But one day Father Rabbit found that by crossing over the river on a fallen tree he could buy carrots more cheaply from a Raccoon who lived on the other side. Soon he was racing back and forth across the river. The Beaver shrugged his shoulders and went into the dry goods business. Then came a terrible flood. The fallen tree was swept away, and the rabbits could only huddle on the bank and gaze longingly across the river. They went back to the Beaver, who said, "Sorry, folks, but I'm out of the carrot business. Could you use a dozen hand towels?" One cold day Mr. Beaver met Father Rabbit foraging for food. The Rabbit was near starvation. He looked at the Beaver with tears in his eyes and wailed, "Where were you when I needed you?" And the Beaver replied, "Where were you when I needed you?"

Whether your needs be carrots or steel, your safest, most reliable suppliers are right here at home. No one knows the needs of American steel buyers better than American steel makers. To serve you, and serve you well, is our primary concern—not just today and tomorrow—but year after year.

For quality steel of certified analysis, meeting appropriate specifications, you can rely on Bethlehem Steel for such products as reinforcing bars, wire and wire products, pipe, structural shapes, plates, carbon bars . . . hot-rolled, cold-rolled, and galvanized sheets . . . transmission towers and other fabricated steel, wire rope, and industrial fasteners.

And remember, our engineers are on call to help you solve your steel-working problems.

Steel *for Strength*
. . . Economy
. . . Versatility

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

BETHLEHEM STEEL

"Call FOSTER get pipe for piling PLUS"

Order pipe piles from Foster and get the right type, in the exact diameter and wall thicknesses you need . . . "plus" fast, on-time deliveries.

Another plus: you get your pipe piles cut to length—no wasteful cut-offs, and a fraction of the usual splices.

Foster's nationwide warehouses stock every kind of pipe piling: economical thin-wall spiral-weld, electricweld, lap-weld, seamless, in all diameters and walls. For foundation pipe, Rental Steel-Sheet Piling, Foster Lightweight Piling, Driving Accessories, and other construction and highway products, call your nearest Foster office.

Write **L. B. FOSTER CO.** for Pipe Piling Catalog EP-8
Pittsburgh 30, Chicago 4, Houston 2
New York 7, Los Angeles 5, Atlanta 8
Cleveland 35

Faster From Foster

Piling • Pipe • Rail

ENGINEERING NEWS-RECORD

EIGHTY-SIXTH YEAR OF PUBLICATION

MEMBER

Editorial Offices, 330 W. 42nd St., New York 36, N. Y.
New York - LOngacre 4-3000; Chicago - MOhawk 4-5800; San Francisco - DOuglas 2-4600
Washington - REpublic 7-4630

Editor, Waldo G. Bowman

Managing Editor, Arthur J. Fox, Jr.

Senior Editors, Frederick S. Merritt, James B. Sullivan

Transportation—Roads, Railways, Airports, Pipelines, Ports
Leo J. Ritter, Jr., Edward M. Young, Jr., Joseph F. Wilkinson

Buildings—Commercial, Industrial, Housing; Codes, Specifications
Frederick S. Merritt, David B. Hill, Marianne Friedland, C. W. Griffin, Jr.

Water—Sanitation, Water Supply, River, Control, Power, Irrigation
James B. Sullivan, William W. Jacobus, Jr., Marie Zanfardino

Business—Management, Labor, Finance, Markets, Contracts, Economics
Robert J. Stinson, Charles J. Harding

Regional Editors
J. Roland Carr, *Chicago, 520 N. Michigan Ave.*
Martha Alexander, *Staff Assistant*
Lauress L. Wise, *San Francisco, 68 Post St.*

Copy—Production
Irwin Landau, Nancy Parkes, John C. Greenough, Robert M. Echols

Presentation
Harry W. Jensen, Robert G. Young

Correspondents, Bureaus
Leah Shanks

Statistics, Prices, Costs—Business News
Elsie Eaves, *Manager*
Julia Mahoney, *Construction Reports*
Mildred Wetzel, Marian Sciorra, Marie Moravsik, Elizabeth Werra, Eleanor Queret
James Webber, Ruth Carlson, *Economics*
William P. Larkin, *Prices, Wages, Indexes*
Evelyn Huber, Charlotte Foster, *Statistics*

Editorial Research and Indexing
Eva Glerat, Rene Hay, Jane Jacobson

Consulting Editors: **Van Tuyl Boughton, Nathan A. Bowers**

Advertising Sales Manager: **Donald S. Robertson**

Circulation Manager: **Edward F. Bressler**

Washington Bureau, National Press Bldg., Washington 4, D. C., **George B. Bryant, Jr.**, Chief, Alan Adams, Glen Bayless, Roy Calvin, Anthony DeLeonardis, John Donaldson, Jay Flocken, Boyd France, Donald Loomis, Gladys Montgomery, Arthur Moore, Seth Payne, Dean Reed, Morton Reichek, Caroline Robertson, Dave Secrest, Vincent Smith.

Domestic News Bureaus: Atlanta—801 Rhodes-Haverty Bldg., B. E. Barnes, Chief, Frances Ridgway; **Chicago**—520 N. Michigan Ave., Stewart Ramsey, Chief, Bruce Cross, Lois Dubin; **Cleveland**—55 Public Square, Arthur Zimmerman, Chief, Violet Forsha; **Dallas**—901 Vaughn Bldg., Marvin Reid, Chief, Lorraine Smith; **Detroit**—856 Penobscot Bldg., Donald MacDonald, Chief, Sally Ayling, Wesley Perry, Jr.; **Los Angeles**—1125 W. 6th St., Kemp Anderson, Jr., Chief, Michael Murphy, Marvin Petal; **San Francisco**—68 Post St., Jennese Keene, Chief, Donald Winston, Alison Hunt; **Seattle**—6040 Fifth Ave., N.E., Ray Bloomberg.

Foreign News Bureaus: London—John Shinn; **Paris**—Robert Farrell; **Mexico City**—Peter Weaver; **Bonn**—Morrie Helitzer; **Beirut**—O. M. Marashian; **Tokyo**—Sol Sanders; **Rio de Janeiro**—Leslie Warren; **Caracas**—John Pearson; **Moscow**—Ernest Conine.

Correspondents: In 70 principal U. S. cities and 70 cities throughout the world.
Director of News Bureaus: John Wilhelm; **Managing Editor,** Margaret Ralston.
McGraw-Hill Economics Department: Dexter M. Keezer, Director.

Publisher, Robert F. Boger

ENGINEERING NEWS-RECORD, Vol. 165, No. 6, August 11, 1960

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Printed at Albany 1, N. Y. See panel below for directions regarding subscriptions or change in address. **Executive, Editorial, Advertising and Circulation Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** OFFICERS OF THE PUBLICATIONS DIVISION: Nelson L. Bond, President; Shelton Fisher, Wallace F. Traendly, Senior Vice Presidents; John R. Callaham, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. OFFICERS OF THE CORPORATION: Donald C. McGraw, President; Joseph A. Gerardi, Hugh J. Kelly, Harry L. Waddell, Executive Vice Presidents; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary. **Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20 per year, payable in advance. Second-Class mail postage paid at Albany, New York. Printed in U.S.A. Title registered in U.S. Patent Office.

©Copyright 1960, McGraw-Hill Publishing Co., Inc. All Rights Reserved.

UNCONDITIONAL GUARANTEE: We agree, upon request to our New York office, direct from paid-up subscribers, to cancel any subscription if ENGINEERING NEWS-RECORD's editorial service is unsatisfactory, and will refund the proportionate subscription price of any unmailed copies.

SUBSCRIPTIONS: Send subscription correspondence and change of address to Fulfillment Manager, ENGINEERING NEWS-RECORD, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify, publisher *promptly of any change of address, giving old as well as new address, and including postal zone number,* if any. If possible enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send Form 3579 to Fulfillment Manager, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Water won't leak in or out of this

FLEXIBLE-COUPLED

UNIVERSAL

VITRIFIED CLAY PIPE

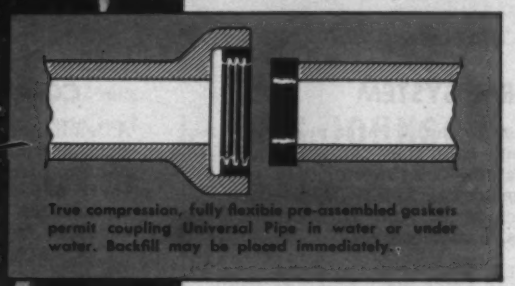
This 8-mile sanitary sewer constructed with Universal Vitrified Clay Pipe produced a water-tight line—rapidly installed "every mile of the way." Here's why:

INSTANT PIPE COUPLING speeds line installation. Flexible Gaskets are pre-assembled to Universal Vitrified Clay Pipe at the factory, and the pipe is delivered to the job site ready for *immediate* installation. Merely coupling pipe into the line completes the water-tight joint. Pipe is coupled faster, job costs are reduced.

COMPRESSION-TIGHT GASKETS seal joints *by compression*. Root and sediment problems are eliminated. Treatment plant infiltration loads are kept at a minimum.

The project was for the Hatfield Borough Authority, Montgomery County, Pa. Albright & Friel, Philadelphia, Pa., were Consulting Engineers. Approximately 8 miles of Universal Tylox-Coupled Vitrified Clay Pipe, size 5" to 12", were installed by Miniscalco Bros. Co. Contractors, Philadelphia, Pa.

6096



True compression, fully flexible pre-assembled gaskets permit coupling Universal Pipe in water or under water. Backfill may be placed immediately.

DESIGN AND BUILD YOUR WASTE DISPOSAL LINES WITH UNIVERSAL FLEXIBLE-COUPLED PIPE. CONTACT US FOR DETAILS.

UNIVERSAL SEWER PIPE DIVISION

UNITED STATES CONCRETE PIPE CO.

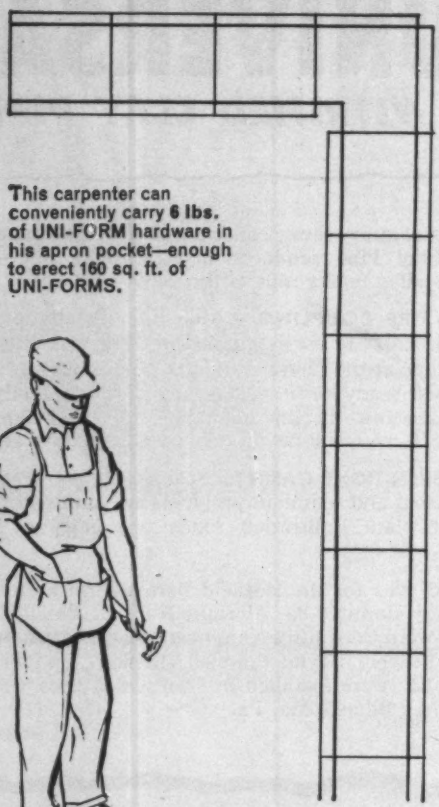
A Subsidiary of Pittsburgh Coke and Chemical Company

SALES OFFICES:

Baltimore 27, Md.—Halethorpe Branch, Box 7428 ..... Tel. CI-2-7400
Philadelphia, Pa. (Mail—Bristol, Pa.) ..... Tel. EN-6015
Bristol, Pa., Box 30 ..... Tel. ST-8-5571
Cincinnati 44, Ohio, Box 536 ..... Tel. LO-1-7846
Ft. Lauderdale, Fla., Box 958 ..... Tel. LU-3-7220
Kalamazoo, Michigan ..... Tel. DA-7-3016
Oakdale, Pa., Box 126 ..... Tel. OW-3-9403

GENERAL OFFICES • 1500 Union Commerce Bldg. • Cleveland 14, Ohio • Tel. MAIN 1-5240

WHICH PREFAB FORM SYSTEM OFFERS MORE PRODUCTIVE FORMING TIME PER DAY?



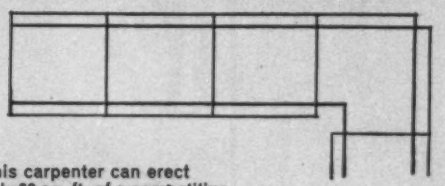
This carpenter can conveniently carry **6 lbs.** of UNI-FORM hardware in his apron pocket—enough to erect 160 sq. ft. of UNI-FORMS.

UNI-FORM SYSTEM

Carpenters can form more contact area per hour with UNI-FORM Panels than they can with any other prefab form system. The reason? It takes less hardware — in most cases, 50% less — to form a given contact area. And UNI-FORM hardware **weighs less, costs less,** and is easier to install.

EXAMPLE: **6 lbs. of UNI-FORM hardware — 128 Tie Keys — are required to install 32 UNI-FORM Ties (4 keys per tie).** 32 Ties are required to erect 160 sq. ft. of UNI-FORM Panels.

Cost of hardware required to install 1 UNI-FORM Tie: **LESS THAN 4¢.**
(Tie Keys are re-usable)



This carpenter can erect only 60 sq. ft. of a competitive prefab system's panels with the **6 lbs.** of hardware he carries in his apron. **Extra trips for hardware means less productive forming time.**

COMPETITIVE PREFAB FORM

A leading competitive prefab form system requires 2 tightening wedges and 2 connecting bolts per tie installed. **In 6 lbs. of this hardware, there are only 24 sets of wedges and bolts — enough for 12 ties.** 12 ties will assemble **only 60 sq. ft.** of this system's panels.

Cost of hardware required to install 1 competitive tie: **36¢.**
(Wedges and Bolts are re-usable)

WHICH PREFAB FORM SYSTEM GIVES YOU FASTER FORM ERECTION AND LOWER COSTS? Want more information about UNI-FORM Panels and the advantages they can bring to your concrete forming? Write today for complete details.

UNIVERSAL FORM CLAMP CO.

"Products from the Gold Toolroom"

1238 N. KOSTNER AVENUE • CHICAGO 51, ILLINOIS

BRANCH OFFICES and WAREHOUSES:
ATLANTA BALTIMORE CLEVELAND HOUSTON
LOS ANGELES SAN LEANDRO TORONTO

UP And RUNNING In 16 Hours..

Automaster-CA Paving Plant

Here's a one-stop paving plant that starts batching profit in as little as 16 hours after components arrive. All parts of the plant package are pre-assembled into easy handling, compact units that meet road limits for truck transport. Maximum lift is about 7½ tons.

What About Batching?

The Automaster-CA weighs out a 1½-cu. yd. paver batch every 15 seconds! Plant has three 38 cu. ft. (3000-lb. scale) aggregate batchers, one 14 cu. ft. (1000-lb. scale) cement batcher. All are air-ram operated, fully automatic — have centralized controls, electric interlocks, and beam boxes with balance indicators.

To meet U. S. Engineer specifications, batching equipment can be furnished with dial scales, 12-mix selector system, graphic pen recording, time and date stamp, interlocks, and aggregate moisture compensating beams. Ask your Johnson distributor for details.

C. S. JOHNSON COMPANY
CHAMPAIGN, ILL., STOCKTON, CALIF.

A Division of **KOEHRING** *Company*

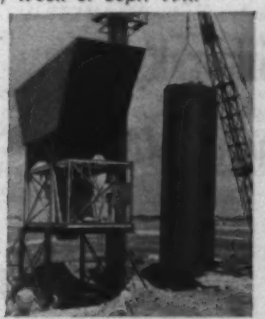
See your distributor about the Koehring Equipment Show, Waukesha, Wisc., Week of Sept. 19th

... portable, stack-up design speeds assembly

Batchers, dial scales and control console are combined into one compact unit — install in one lift. Plug-in control connections eliminate complex field wiring.

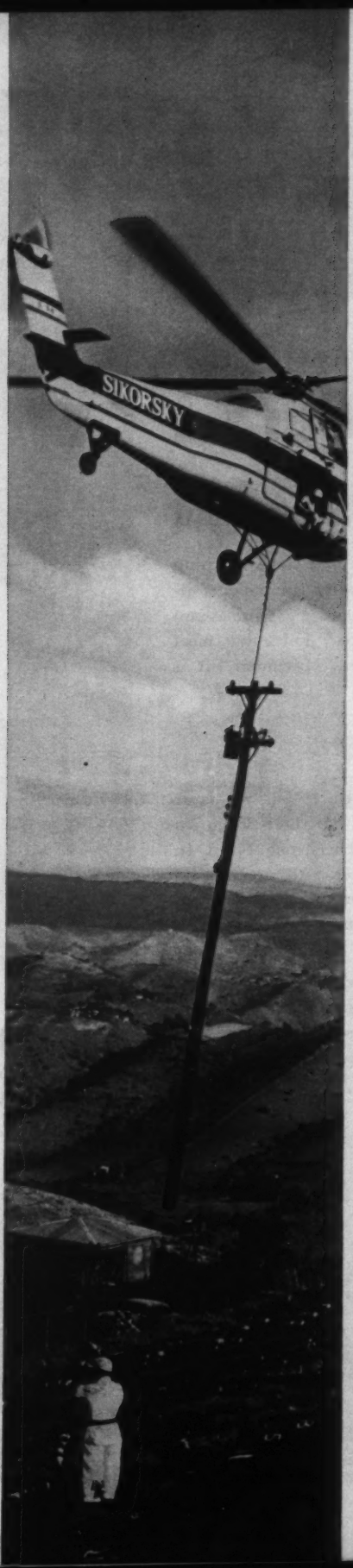
Divided material bin stacks above batchers. Holds 100 cu. yds. aggregate (150 tons @ 3000 lbs. per yd.) — 145 bbls. cement (@ 4 cu. ft. per bbl.)

Next, cement elevator complete with head platform, access ladder, and safety cage goes up. Chain and bucket-line capacity: 440-bbl.-per-hour.

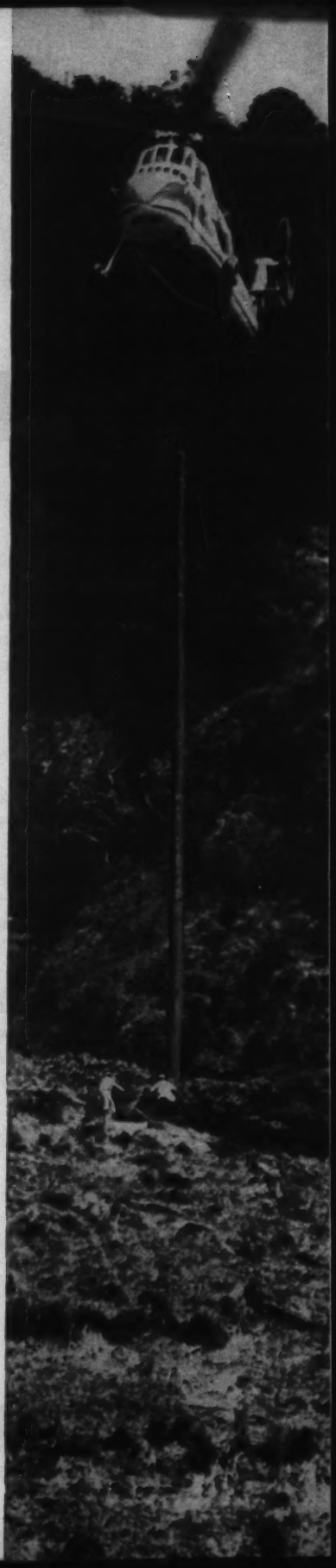


Lower undertrack screw conveyor into place, add silo, and bring on the trucks! Silo with aeration system, high-low-level signals, etc. Holds 447 bbl.

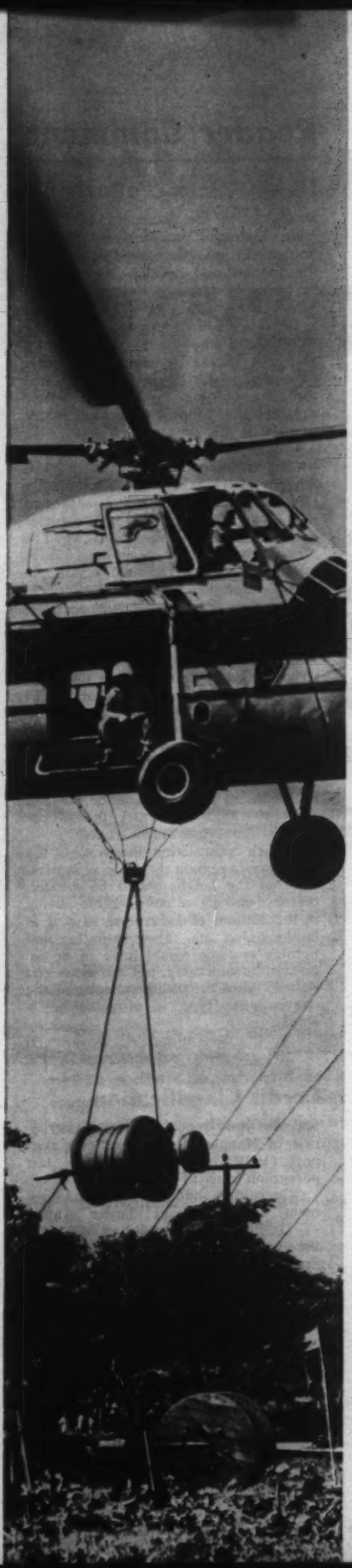
1



2



In the mountains
of Puerto Rico,
work crews once
needed three to
four months to
plant 100 poles...
now one crew
plants 100 poles
in one day
with just one
Sikorsky
helicopter



3

Power line construction in Puerto Rico is tough work. Pole-planting crews of the island's Water Resources Authority must slash through thick tropical vegetation, push across mountainous terrain. They fight against time and nature. And now they are licking both with an S-58 Sikorsky helicopter.

Last Spring, the Authority bought the S-58 after earlier successful experiments with that machine. When the S-58 was in full-time use for only 10 months, time and money savings had paid off its cost in full. Now the Authority estimates that, with the copter, it can complete a full year's pole-setting program in a period of only three months.

Money savings? "Conventional transmission line pole-setting costs us from $120 to $380 per pole, depending on the terrain," reports Rafael R. Ramirez, the Authority's assistant executive director. "With the helicopter, these costs come down to $35 to $75 per pole"... savings of 70% to 80%.

Can your business use a Sikorsky helicopter to make a tough job easier, do it faster—and save money? We'll be glad to supply more facts and discuss the possibilities with you.

1

AGILE AS A HUMMINGBIRD, the S-58 Sikorsky helicopter hops from the staging area to pole sites, transporting and setting rural electrification poles like this one weighing 1,300 pounds. The S-58 will transport and plant them at a rate of 20 an hour—100 in a full working day.

2

PAUL BUNYAN WAS A PIKER compared with this S-58 Sikorsky. The 65-foot, 3,750-pound transmission line pole it has lifted to the top of a Puerto Rican hill is guided into place by a two-man ground crew. Minutes later, the helicopter will be back with a second pole to make the H-frame structure. Then it will transport and set the crossarms weighing 3,300 pounds.

3

SPECIAL DELIVERY—Into a tight spot the helicopter lowers a fresh reel of cable. The S-58 is used in the stringing operation, too. In one day, it can string a mile of transmission line, consisting of three conductor and two shield cables. Handled by manpower alone, the same job takes two weeks, costs three times as much. The largest work done to date is 115 Kv on wood H-frame structures, 795 ACSR.

A New World of Mobility by

IKORSKY AIRCRAFT

Stratford, Connecticut
A Division of United Aircraft Corporation

NOW...
auction sales on credit!

Liberal on-the-spot financing—expert auction clerking—for better construction equipment auctions throughout the U.S.

Now contractors have a new opportunity to make the best deals on equipment — with Thorp on-the-spot credit anywhere in the U.S. at Thorp Auction Sales.

Thorp's complete auction service moves equipment faster, without financial red tape. A buyer can get equipment he wants on a Thorp time payment plan fitted to his ability to pay.

The seller gets the cash, the buyer his equipment — at the close of every Thorp Auction Sale.

Thorp's single-fee auction package includes: Clerking and cashiering by bonded personnel. Extensive advertising. Itemized final accounting of sale, plus the benefit of specialized sale and financial know-how.

For auction information you can use, without obligation, be sure to fill in and mail the coupon below — today.

Bank references: First Wisconsin National Bank, Milwaukee • Chase Manhattan Bank, New York • First National Bank of Chicago • Detroit Bank and Trust Co. • People's First National Bank and Trust Co., Pittsburgh • National Bank of Tulsa • First National Bank of St. Louis • others on request.

Mr. Robert Conway, Vice President
THORP SALES CORPORATION, DEPT. E-83
Miracle Mile, P.O. Box 948, Rochester, Minnesota

Without obligation,

☐ send more information on how I can hold a Thorp Auction Sale

☐ send information on time and place of the next Thorp Auction Sale.

NAME.....
FIRM.....TITLE.....
ADDRESS.....PHONE.....
CITY.....ZONE.....STATE.....

15-60

THORP SALES CORPORATION
HOME OFFICE: THORP, WIS.

Reader Comment

Double-Deck Tunnels

SIR—Due to the increased traffic on main highways in McKeesport, Pa., bottlenecks have developed at some of the tunnels and another tunnel must be bored in order to relieve the pressure.

Because of the enormous cost of the additional tunnel, and the possibility that the constant blasting in the new passageway may to some extent disturb the existing tunnels, the writer suggests the following for all future tunnels of this type.

Instead of basing cost estimates and traffic requirements on the normal amount of traffic which will eventually travel over the highway, it is suggested that a much greater number of vehicles be taken into consideration; when a proper estimate has been determined, instead of basing the final results on the conventional tunnels, that double decked tunnels be used for this purpose.

Naturally, these new tunnels will be considerably larger than the conventional tunnel, but if they are constructed in this manner from the start, much saving of time and effort might result.

My idea calls for a double decked tunnel in which four lanes will be provided in each tube, in which the traffic will move in the same direction, and, by means of ramps, it will be possible for the traffic to reenter the proper lanes without too much trouble.

In such construction, the width of the tubes would remain the same as at present, but the height would be greater, thereby making a considerable saving in the amount of excavation as well as in the lining, etc. The ventilation and lighting systems would have to be increased considerably, but the same can be said when an additional tube of the conventional type is provided afterwards.

ARNOLD A. ROSENFELD
McKeesport, Pa.

Credit Classification

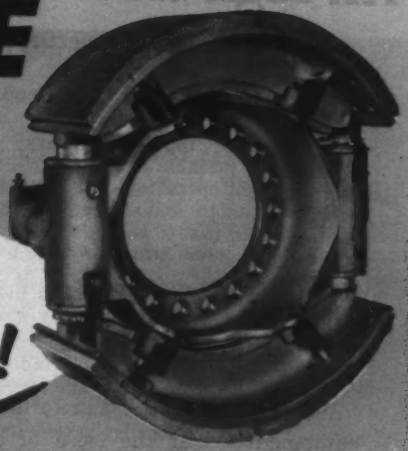
SIR—In your report on the construction of Hangar III at Frankfort's Airport (ENR June 2, p. 50) the last paragraph runs as follows:

"Consulting and contract management was by Frank Turter Auflau A. G. Philipp Holzmann, A. G., was the contractor. Both are Frankfort firms. Prof. A. Mehmal, Darmstadt

(*Reader Comment continued p. 16*)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed, Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

It's here! New HEAVY-DUTY STOPMASTER BRAKE



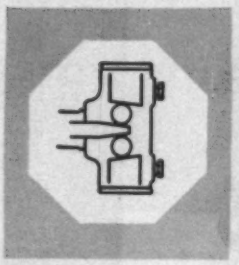
Biggest News in Brakes for Off-Highway Equipment in over 30 years!

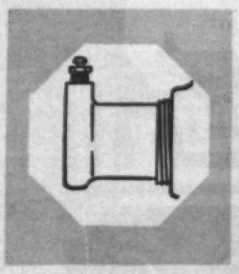
To meet the growing need for more versatile, more compact, more dependable braking equipment in off-highway operations, Rockwell-Standard® now presents a completely new concept in brake design.

This new brake is specifically engineered for use on scrapers, prime movers, earth and rock wagons, dump trucks and similar construction vehicles. Available in 17, 20¼, 22 and 26-inch diameters and in 4 to 10-inch widths.

If it's a Stopmaster you get . . .

- **Reduced Operating Cost**
- **Less Heat Fade**
- **Greater interchangeability of parts**
- **Heavy Duty ¼ inch tapered Econoliners®**
- **Adjustment frequency reduced**
- **Rugged Design**
- **Extended Drum Life**





Only the Heavy-Duty Stopmaster offers:

"BALANCED DESIGN" AND NEW ACTUATION PRINCIPLE

Results in improved braking performance and lower operating temperatures. In Dual-Actuation design, both shoes do an equal amount of work. Balanced shoe-action assures more dependable service; faster, surer stops.

HYDRAULICALLY OPERATED

New hydraulic cylinders offer more compact design and increased mounting flexibility for better protection. External cylinders, located outside of drum, eliminate heat damage and overheating of fluid. For air-over-hydraulic systems, air volume requirements are considerably less. Actuation time is reduced, with faster response of hydraulic system. The Stopmaster Brake is well suited for straight hydraulic, air-over-hydraulic, or vacuum-over-hydraulic operation.

Another Product of...

ROCKWELL-STANDARD CORPORATION

Brake Division, Ashtabula, Ohio

25% more hole per hr.

in hard limestone with high silica content

... than with competing rig

Quarry performance like this is standard with REICHdrill. Why? Because:

- ... all-hydraulic top-drive rotary provides infinitely variable speed of drill rotation — the right speed for every formation.
- ... direct-drive to drill stem saves power loss.
- ... all air used to drill and clean hole.
- ... no complicated transmission, no rotary table.
- ... no kelly bar — in and out of the hole faster.
- ... instant safety torque release protects all drive components.

REICHdrill has built a reputation for keeping maintenance costs low; footage records high.

And these additional REICHdrill features help set drilling records: masts incline for angle drillings; CP heavy-duty compressors assure plenty of air to meet all demands; fast-acting, ram-type hydraulic leveling jacks permit use of most rig weight for down pressure; CP "Air-Blast" Bits for extra footage in toughest formations.

For further information, write:

REICHdrill

1439 ASH STREET, TERRE HAUTE, INDIANA

Division: CHICAGO PNEUMATIC TOOL CO.

T-650 truck-mounted REICHdrill operating in a quarry. Hole size: to 7⅞"; down pressure: 30,000 pounds. Other models available, truck or crawler mounted, with hole size to 16 inches, down pressure to 90,000 pounds.

Winch Power for tough jobs—

HYSTER® has it!

Rugged, reliable winch power gives contractors "job insurance" that helps keep contracts on schedule—equipment rescue and assistance, moving heavy material, pioneer work.

Hyster winches are engineered for Caterpillar-built tractors. These high performance standards make Hyster winches your best buy. Ask your Caterpillar-Hyster dealer for information on the winch for your job.

Cat and Caterpillar are registered trademarks of Caterpillar Tractor Co.

TRACTOR EQUIPMENT DIVISION—Construction and logging equipment
INDUSTRIAL TRUCK DIVISION—Lift trucks, mobile cranes, straddle carriers
MARTIN TRAILER DIVISION—Heavy machinery hauling trailers
INTERNATIONAL DIVISION—Overseas manufacturing, sales and service

Factories: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill. • Nijmegen, The Netherlands • Glasgow, Scotland • Sao Paulo, Brazil • Sydney, Australia (Licensee)

HYSTER

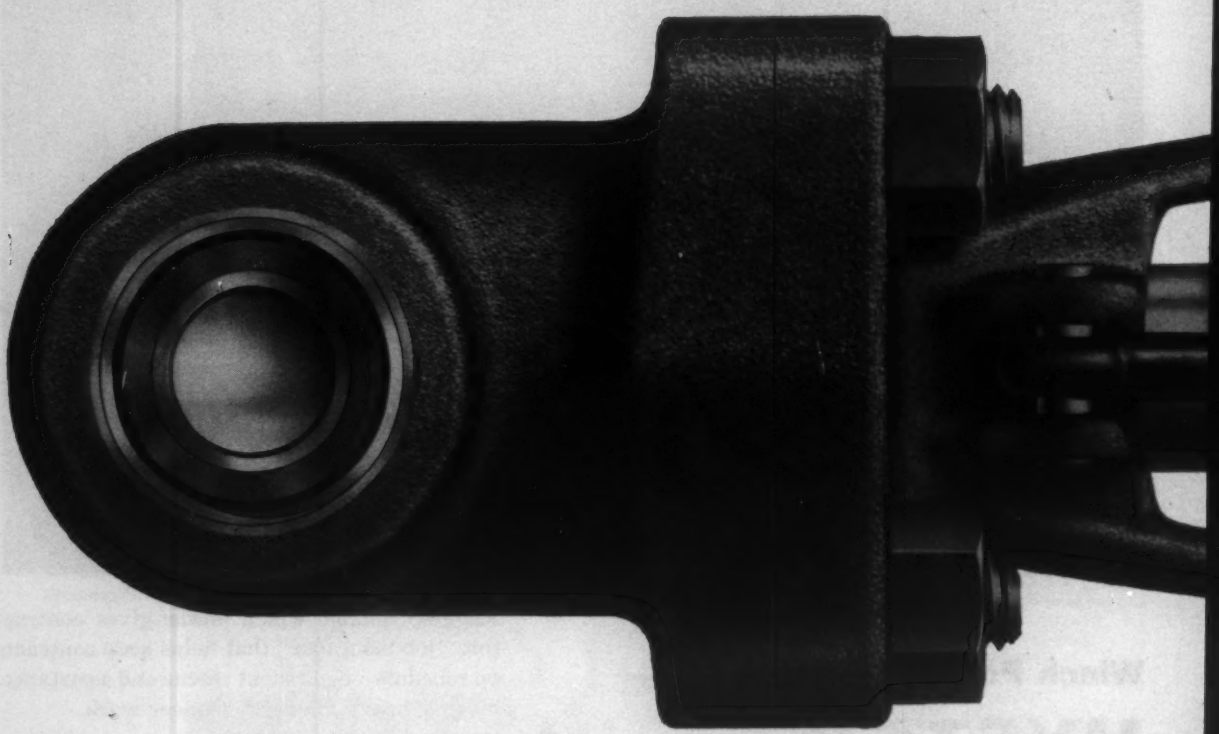
HYSTER COMPANY
TRACTOR EQUIPMENT DIVISION
P. O. Box 328 • Peoria, Illinois

Reporting more news from...

CRANE DIRECTION '70

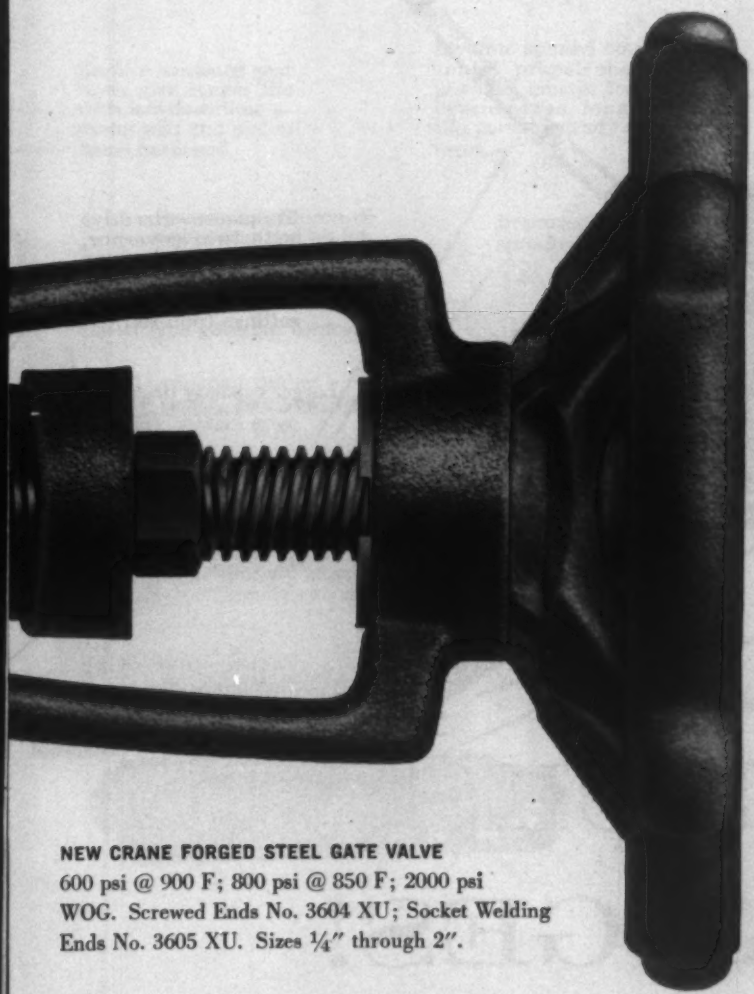
...a fast-moving program of planned expansion, product development, and streamlined distribution to help our customers meet the competitive challenges of the Sixties.

COMPLETELY



REDESIGNED!

THE NEW SMALL FORGED STEEL GATE VALVE



NEW CRANE FORGED STEEL GATE VALVE
600 psi @ 900 F; 800 psi @ 850 F; 2000 psi WOG. Screwed Ends No. 3604 XU; Socket Welding Ends No. 3605 XU. Sizes ¼" through 2".

This is a whole new valve, not just one with a new feature added. This redesign incorporates all the features you told us you wanted plus a few others we know will make this valve a better buy in terms of longer service life, less maintenance, easier and faster servicing.

Like the new "bow-leg" yoke, which for the first time gives you plenty of hand room for easy stuffing box maintenance. And like the long-life braided asbestos packing, with Inconel wire insert. The "universal" trim that can be used for either oil or steam, eliminating many of your stocking problems. The spiral wound stainless steel bonnet gasket with asbestos filler, made blowout-proof with a male-female joint.

But what we really want you to remember, more than any single feature, is that this Crane valve is the newest—all new—valve on the market . . . well worth considering when you need small, high-pressure steel gate valves. We'd like you to compare this new valve with any other comparable valve feature for feature.

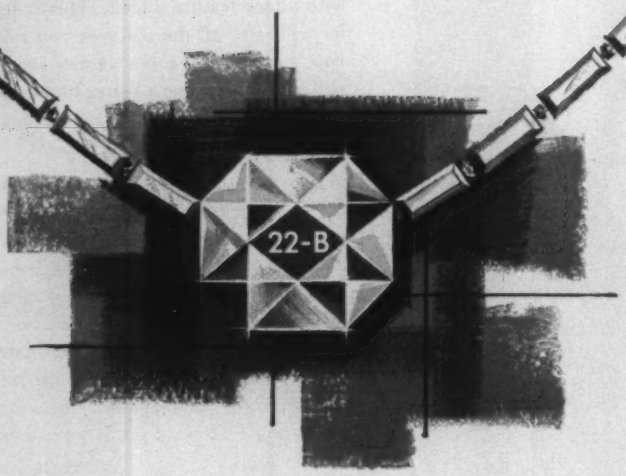
Your local Crane distributor has technical literature and a complete selection of these valves right in stock. Call him on small steel gates. In fact, he's your best bet to call no matter what valve you want because he carries the broadest line of quality valves in the world.

CRANE®

CRANE CO., INDUSTRIAL PRODUCTS GROUP
4100 S. KEDZIE AVE. . CHICAGO 32, ILL.
VALVES • ELECTRONIC CONTROLS • PIPING
PLUMBING • HEATING • AIR CONDITIONING

CROWN JEWEL

IT'S



Torque converter drive with twin governor, dual control gives operator infinite control of power and speed settings (optional).

Larger capacity drums.

6 Adjustable hook rollers — large diameter and conical — compensate for normal wear. Adjustment is simple matter of removing shims.

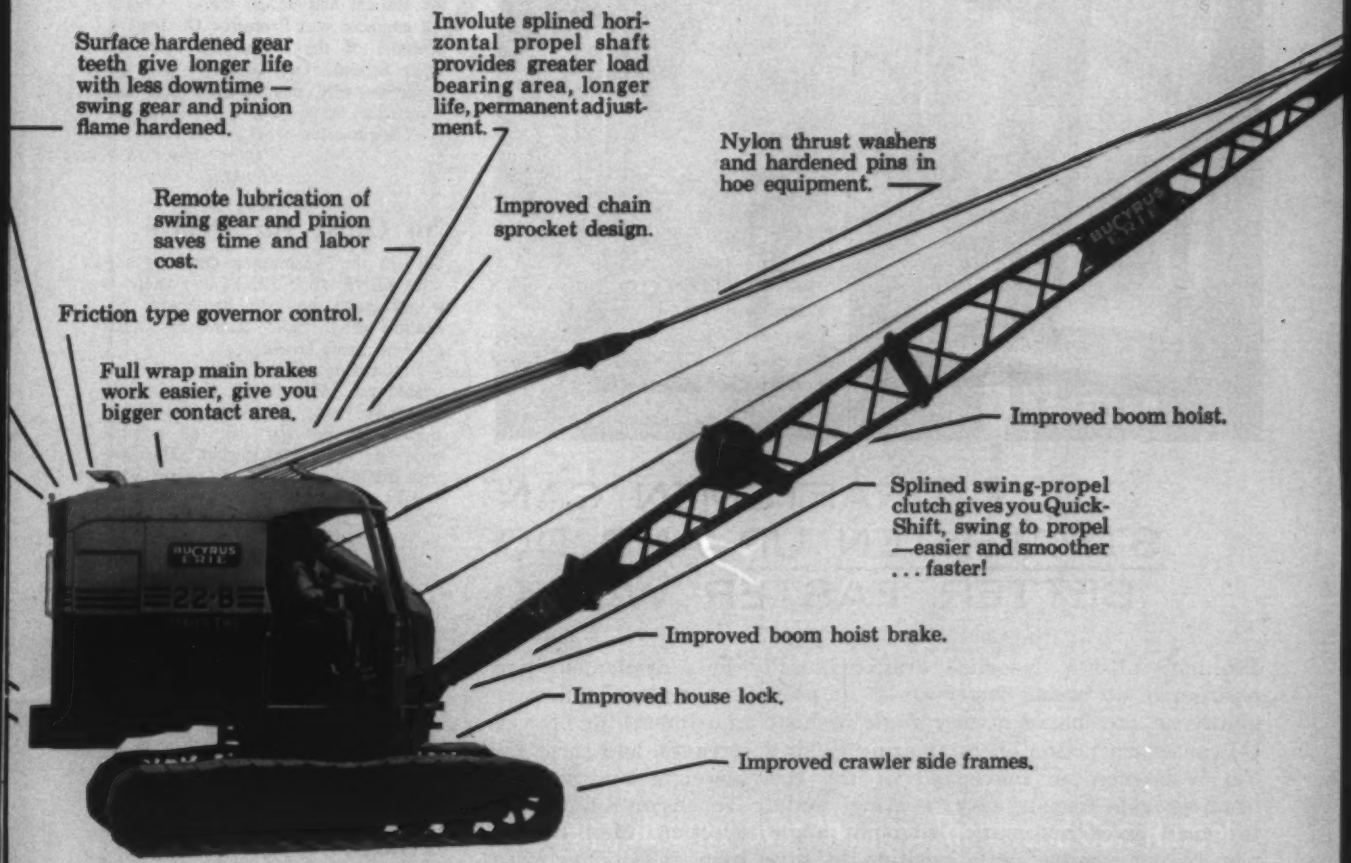
Sealed outer swing clutch bearings.

ANNOUNCES CHANGES!

THE Bucyrus-Erie 22-B, far and away the most famous and widely used crane-excavator in its class, continues to lead the field with major operational changes to match the stepped-up pace of current construction activity!

NOW THE SERIES TWO 22-B

...and these are the improvements for '60!

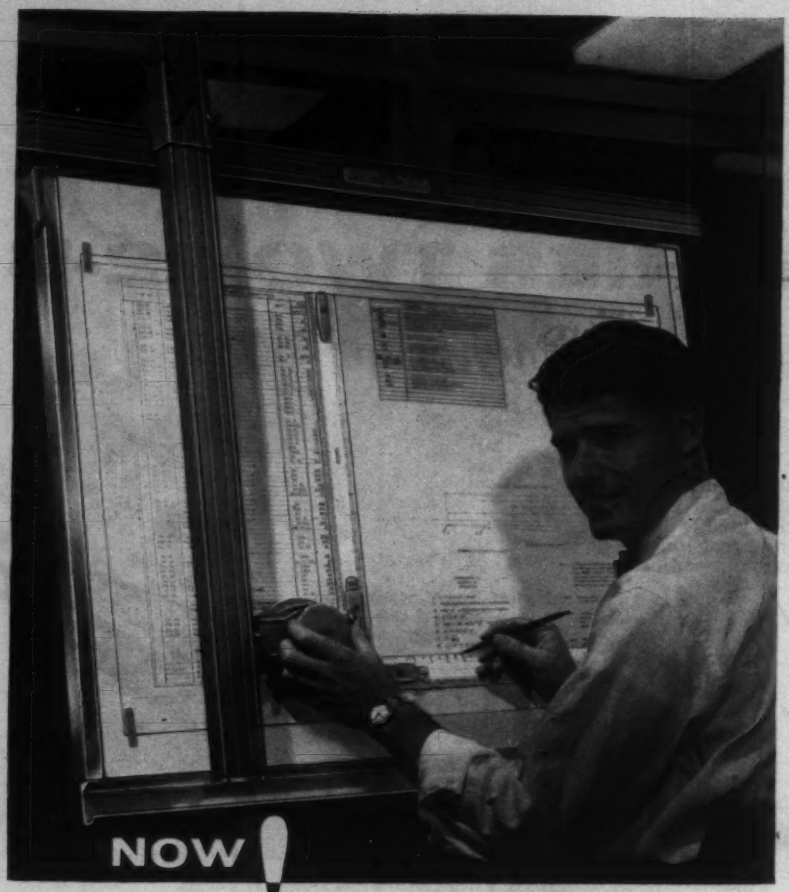

Surface hardened gear teeth give longer life with less downtime — swing gear and pinion flame hardened.
Involute splined horizontal propel shaft provides greater load bearing area, longer life, permanent adjustment.
Nylon thrust washers and hardened pins in hoe equipment.
Remote lubrication of swing gear and pinion saves time and labor cost.
Improved chain sprocket design.
Friction type governor control.
Full wrap main brakes work easier, give you bigger contact area.
Improved boom hoist.
Splined swing-propel clutch gives you Quick-Shift, swing to propel —easier and smoother ... faster!
Improved boom hoist brake.
Improved house lock.
Improved crawler side frames.
BUCYRUS ERIE
22-B

FOR ALL THE FACTS, see your Bucyrus-Erie distributor, or write to Bucyrus-Erie Company, South Milwaukee, Wisconsin ... *today!*

most respected name in the field

BUCYRUS ERIE

19E60



DRAFTSMEN CAN STRAIGHTEN UP AND DO BETTER, FASTER WORK!

Bruning's all-new Neoglide drafter literally puts draftsmen in a position to do better, faster work.* It provides complete maneuverability on any board *at any angle* without adjustment! Reinforced U-Beam construction offers amazing rigidity, strength, and accuracy. Yet resistance-free movement of the counterweight and vertical beam provide free-and-easy "floating" action. Touch-control protractor head gives automatic, pin-point angle selection. Mail coupon now to put yourself in a position to save time and money with all-new Neoglide!

*Study of 300 draftsmen showed 35% savings on drawing time—1/5 the backaches—on vertical or near vertical boards.

BRUNING

Charles Bruning Co., Inc. Dept. 8-U
1800 Central Rd., Mt. Prospect, Ill.
Offices in principal U.S. Cities
In Canada: 103 Church St., Toronto 1, Ont.
Please send me more information about your all-new Neoglide drafters.

Name_____ Title_____

Company_____

Address_____

City_____ County_____ State_____

. . . Reader Comment

Engineering College, was consultant and checker for concrete shell design."

Those statements are partly incorrect.

The tender design was prepared by the Employer, Frankfurter Aufbau A. G. However, the hangar was built according to an alternative design elaborated by our company, Philipp Holzmann, A. G. In Germany it is customary that big building enterprises in their own design offices re-study the designs constituting the basis of the tender, in order to obtain more economical solutions. The employer decided to adopt one of the alternative designs prepared by Philipp Holzmann A. G. who, as pilot firm of the contractors' joint venture, was also charged with the statical and design work. Checking engineer was Professor Dr.-Ing. A. Mehmel of the Darmstadt Technical High School. Our company was engaged as both consulting engineer and contractor, as is usual in Germany for civil engineering work of this nature.

PHILIPP HOLZMANN
Frankfurt, Germany

No Cause for Delays

SIR—In the Washington Observer column (ENR June 23, p. 39) there is a paragraph on "the Pentagon's $5-million grant radio telescope" which contains some errors.

Preliminary subsoil investigations revealed no "difficulties." Core borings currently being made are not "additional" to, but part of, the original plan for soils investigation. The borings are not being taken "to see what can be done about the site's soft bottom" but as a routine investigation of the rim of the bowl where towers and cable anchorages will be placed. Since the investigations to date have produced no "unexpected snag" there is no reason to expect schedule delays or increased costs.

W. E. GORDON
Professor
Cornell University
Ithaca, New York

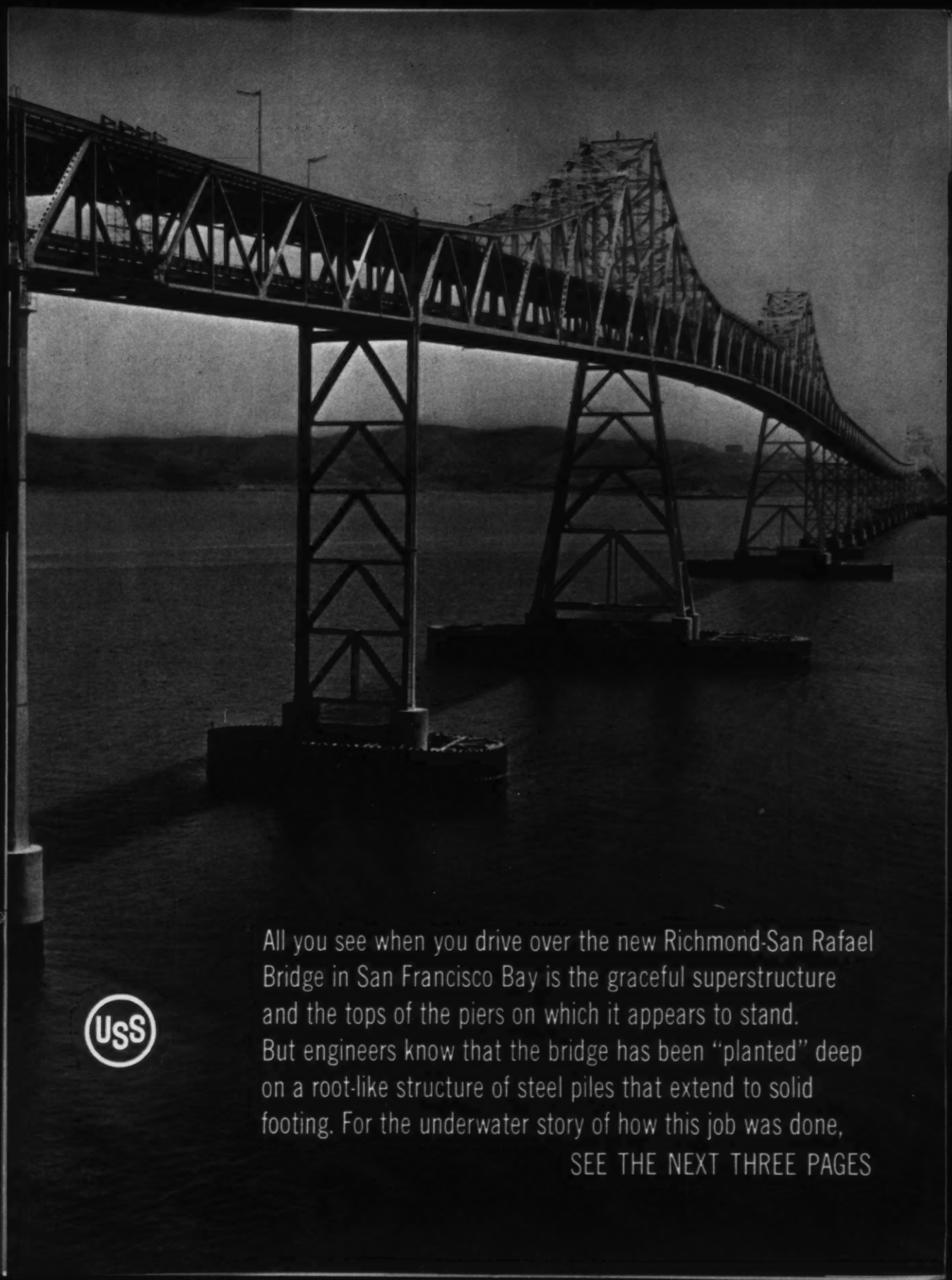
Editor's Note: First construction contract is due to be awarded next month (ENR Aug. 4, p. 22).

Trans-Michigan Canal

SIR—The Great Lakes area is an enormous terminal of the St. Lawrence Seaway and further development of that terminal would be beneficial. A ship canal from Lake Erie to Lake Michigan connecting the Toledo area with the Michigan City area would benefit many industrial centers along the route.

This short-cut across the lower Michigan peninsula would save vessels the trip along the lengths of Lakes Huron and Michigan to reach Chicago, Milwaukee and other southern ports.

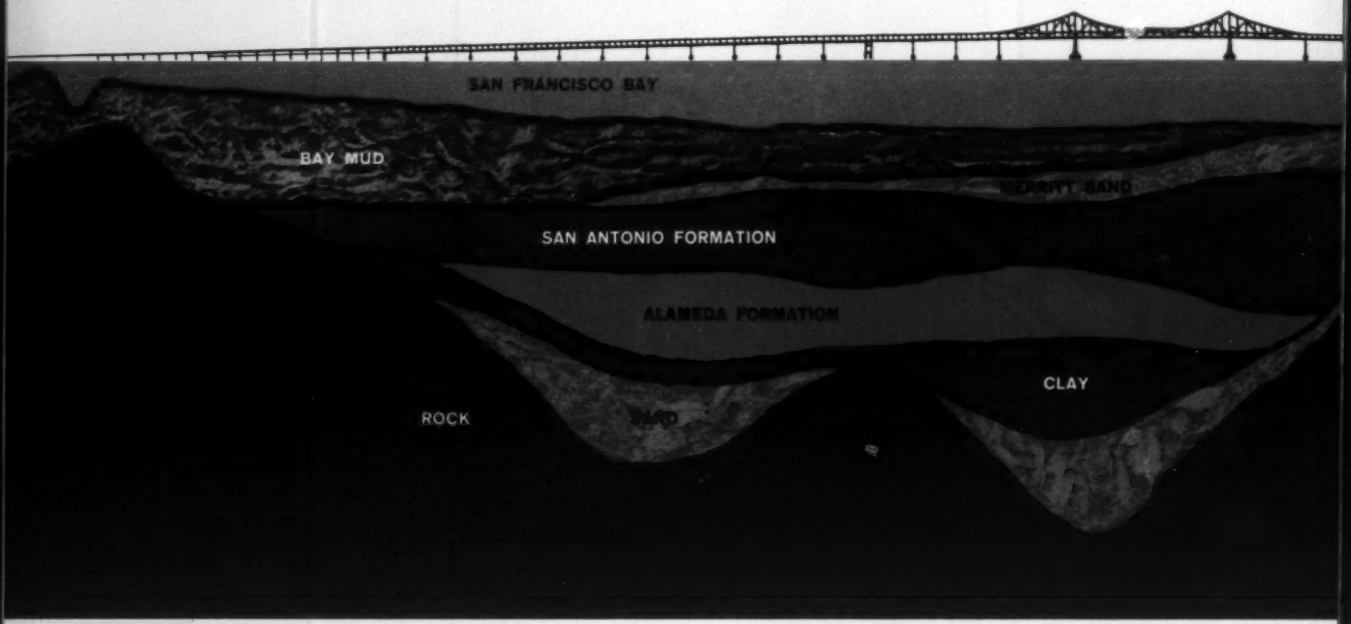
NORMAN DE WIND
Annapolis, Md.



All you see when you drive over the new Richmond-San Rafael Bridge in San Francisco Bay is the graceful superstructure and the tops of the piers on which it appears to stand. But engineers know that the bridge has been "planted" deep on a root-like structure of steel piles that extend to solid footing. For the underwater story of how this job was done,

SEE THE NEXT THREE PAGES

Richmond-San Rafael Bridge over San Francisco Bay—length 21,345 feet. Lower sketch shows stratification encountered and points up need for extra long piles. This bridge was built for the State of California, Department of Public Works, Division of San Francisco Bay Toll Crossings. Substructure General Contractor: Ben C. Gerwick, Inc., and Peter Kiewit Sons Company.



Problem: How to put the Richmond-
Solution: USS H-Piles under novel

The Richmond-San Rafael Bridge, just north of San Francisco, is one of the world's longest. It stretches across the bay for 21,345 feet. This makes it longer than the Mackinac Bridge and only 1,377 feet shorter than the San Francisco-Oakland Bay Bridge. The new bridge has two decks, each carrying three lanes of traffic across San Francisco Bay between Richmond and San Rafael, California.

Tests on soil samples indicated proposed loads on displacement-type piles would probably result in excessive settlement. It was decided that piles had to be driven to rock or into a deep sand-gravel stratum.

Studies indicated that steel H-piles were the logical choice because:

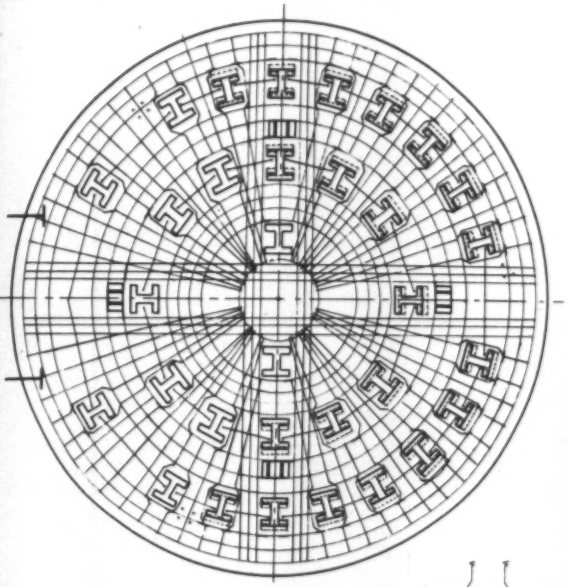
1. H-piles were more suitable for penetrating the deep overburden in order to reach suitable strata for end bearing.
2. H-piles provided utmost flexibility of final lengths—they could be easily cut or spliced.
3. Their ruggedness made for easy handling.
4. Their strength permitted heavy loads per pile.
5. They were readily available.

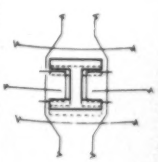
Precast bell-type piers were selected for the deep water portion of the job. These had proved economical for pile-supported piers in moderately deep water on previous major bridge jobs. At each bell-pier location, several steel H-piles were driven to position a precast concrete base grid which was later incorporated in the pier foundation. The base grid contained slots designed to act as guides for the remaining 14-inch, 89-pound steel H-piles. These were later grouted into the base grid which then served as the base for the precast bell sections set on top. After pouring a tremie seal inside the bells, the rest of the concrete was placed in the dry. These base grids were 12 to 56 feet below water so that the contractor had to provide for underwater driving of piles. This was done with rigs especially designed for the job to provide telescoping leads to support the hammer as deep as 56 feet under water and the pile head as much as 110 feet above the water.

There were 62 bell-type piers constructed. In addition, 8 cofferdam-type piers and 9 dry-land piers also utilized steel H-piles. The 79 piers are supported by 5,047 14-inch, 89-pound steel H-piles ranging in length from 30 to 175 feet—a total of 585,700 lineal feet, or about 25,000 tons, approximately half of which were supplied by United States Steel.

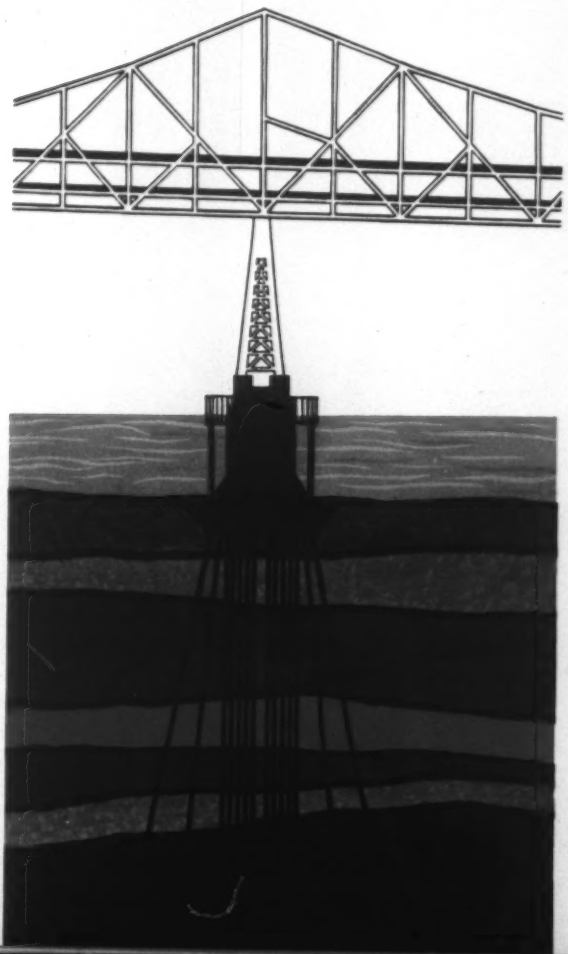
For information on any type of steel piling—steel H-piles, sheet piling or steel pipe piling, write to any of our district offices or United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

San Rafael Bridge across these holes... bell-type piers





Base grid for bell-type pier showing slots for locating piling. Batter piles indicated by dotted lines and shown in detail on small drawing.



TURN PAGE

how the bell-type piers were constructed underwater

1. At each pier location, concrete base grids containing slots to guide the steel H-piles were lowered through the water to exact position. Some were as deep as 56 feet.

2. Several steel H-piles were driven to hold each base grid in exact position. The remaining piles were then driven and the base grids were later incorporated in the pier foundation. Where necessary, pile tops were cut off underwater by divers.

3. Cylindrical precast bell sections were lowered through the water and positioned on top of each base grid. A special seal made the joints watertight.

4. Cone-shaped precast concrete or steel sections with a seal on top and bottom were then placed on top of the cylindrical sections.

5. Precast shaft extending above water. After pouring a tremie concrete seal inside the bells, the rest of the concrete was placed in the dry.

For the main piers using four interconnected bells and for some of the two-bell piers, special steel forms were used instead of precast concrete bells.

USS is a registered trademark

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
National Tube—Pittsburgh
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Export Company
United States Steel

USS

Steel

because it's strong
because it's durable

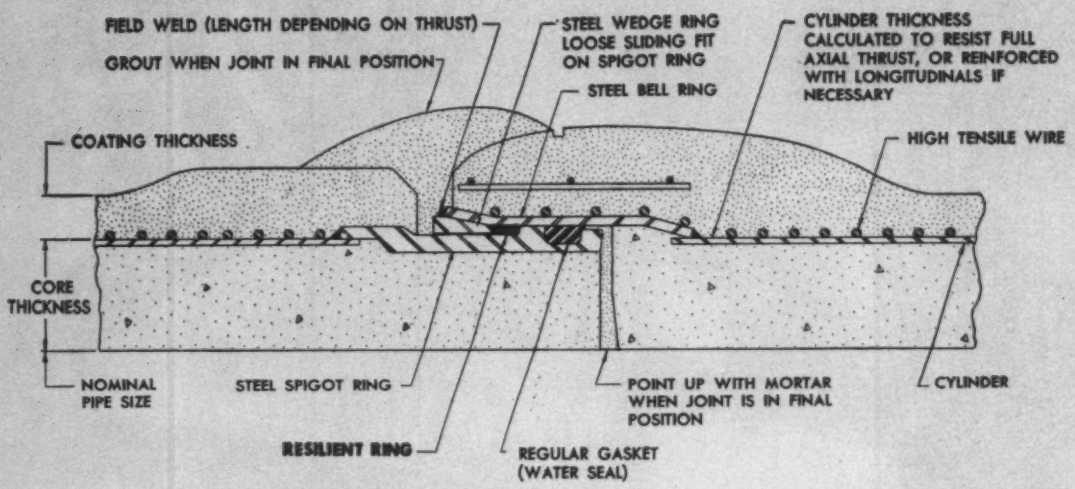
U.S.F. & G. bonds more construction – year in, year out – than any other insurance or surety company.

THE USF&G

United States Fidelity & Guaranty Company, Baltimore 3, Md. • Casualty - Fire - Marine Insurance • Fidelity - Surety Bonds

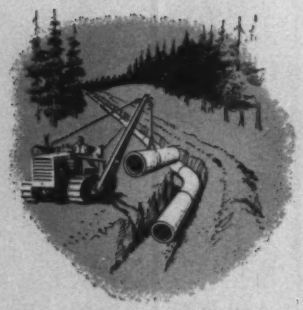
new

LOCK JOINT'S FLEXIBLE TIED JOINT *


FIELD WELD (LENGTH DEPENDING ON THRUST)
GROUT WHEN JOINT IN FINAL POSITION
STEEL WEDGE RING LOOSE SLIDING FIT ON SPIGOT RING
STEEL BELL RING
CYLINDER THICKNESS CALCULATED TO RESIST FULL AXIAL THRUST, OR REINFORCED WITH LONGITUDINALS IF NECESSARY
COATING THICKNESS
HIGH TENSILE WIRE
CORE THICKNESS
NOMINAL PIPE SIZE
STEEL SPIGOT RING
POINT UP WITH MORTAR WHEN JOINT IS IN FINAL POSITION
CYLINDER
RESILIENT RING
REGULAR GASKET (WATER SEAL)

RUBBER & STEEL FLEXIBLE TIED JOINT

SECURE...FLEXIBLE...WATERTIGHT



Lock Joint Pipe Company, pioneer in the development of efficient, flexible, watertight joints for concrete pressure pipe, once again is first with the most practical solution for restraining thrust at joints where conventional blocking is impossible or impractical.

A greater measure of flexibility is imparted to this field-welded joint by the resilient ring, located between the weld and the watertight rubber gasket seal. This ring also improves the tensile characteristics of the joint by distributing the load more evenly around the periphery of the joint ring.

Detailed description of this joint may be obtained from Lock Joint Pipe Company on request.

**Patent applied for.*

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Kan. • Perryman, Md. • St. Paul, Minn. • Winter Park, Fla.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

ENGINEERING NEWS-RECORD

Vol. 165, No. 6 August 11, 1960

Number of copies printed in this issue 86,358

CONTENTS

Chesapeake Bay Dream Comes True..... 27
On Congress' Must List: Construction..... 29
Suspended Span for LA Harbor..... 30
Bay State's Largest Bridge..... 30
Cost of Seattle Sewer Plan Escalates..... 31
Corps Exhibit Depicts Flood Control..... 31
Junior High School Texas Style..... 32
Office Tower Will Straddle Bank..... 32
Engineer Generals Go to the World's Fair..... 36

FEATURES

Brazil's Tres Marias Dam..... 42
Garage Ramps Cast in Lift Slabs..... 51
Bridges Raised to Clear Missiles..... 57

INTERNATIONAL

Timing Counts on Rhine Project..... 59
Airport Buildings Raced Olympics..... 61

NEW PRODUCTS

Large Fork Lift Loads 35 Tons..... 67
Drill on Crawler Has Versatility..... 67

LABOR

Neil Haggerty: Construction Workers' Spokesman 88
Trade Unions Take on a Selling Job..... 97
'Summit' Progress Is Slow..... 97

BUSINESS AND FINANCE

Contractors Report Profit Drop..... 99
BPR Looks the Other Way..... 99
Consultants' Volume Leaps in '59..... 100
Hotel Plans Come and Go..... 102

Reader Comment.... 8
Washington Observer 25
Unit Prices 70
Materials Prices 75
Construction Reports. 76
Statistics, Indexes... 86
Editorials..... 112

Picture Credits

Cover, 88, 89, 90—Merkle Press Inc.; 27—Fairchild Aerial Surveys, Inc.; 30, top—California Dept. of Public Works; 36, left—U. S. Army Corps of Engineers; 44—Morrison-Knudsen; 51, top—Handy-Boesser; 57—ENR; 61—Magis.

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

BOND DEFEAT BRINGS U. S. SUIT—The Public Health Service is moving into unchartered enforcement territory with a request that the Justice Department sue St. Joseph, Mo., to force the city to build sewage disposal facilities. St. Joseph voters in May vetoed for the second time a proposed bond issue aimed at financing treatment works ordered by the PHS a year ago. The court action—following a request, conferences and an order to the city—is the government's last resort under the 1956 Pollution Control Act.

GET IN THERE AND BUILD—Missile base contractors, architect-engineers and missile manufacturers gathered at Forbes Air Force Base, Kan., last week to hear a pep talk from Air Force Maj. Gen. Thomas Gerrity. He was appointed by Defense Secretary Thomas Gates to get ICBM bases built as rapidly as possible. This meeting was exactly a week after a similar conference in the Pentagon (ENR Aug. 4, p. 26). Latest Air Force move will be to take over launch sites as they are completed, instead of waiting for an entire base to be built.

IT ISN'T WORKING CAPITAL—The House Veterans Affairs Committee is checking reports that some veterans have lost their deposits on new houses in cases of builder-bankruptcy because the cash was used as working capital. The law requires that down payments be held in escrow; penalty for failure to do so is exclusion from both VA and FHA programs.

FAIR SUBCONTRACTOR—The New York World's Fair has awarded an interesting subcontract to the Port of New York Authority—to assume responsibility for building design and space renting for the area devoted to transportation exhibits.

EAST RIVER BORE HOLED THROUGH—Poirier & McLane's night crew blew the last plug out of an 8,000-ft sewer tunnel under New York City's East River last week. The 11-ft bore was driven from a single heading through hard rock about 300 ft below the river. This job drew attention at its start when the contractor used the unusual earth-stabilization technique of freezing (ENR Sept. 3, 1959, p. 25).

DAY AND NIGHT—Application of self-luminous, isotope-activated informational and directional signs to highways is "entirely feasible," according to BPR's Division of Development. Advantages are lower maintenance cost than electrically operated signs and good visibility, especially in overhead locations.

MORE TRANSPORTATION BRAINPOWER—The Ford Foundation has granted the RAND Corp., Santa Monica, Calif., $500,000 for a three-year exploratory study of urban transportation.

HERE'S HOW YOU CAN SAVE UP TO 25% ON YOUR NEXT CONCRETE PLANT

Appreciably Lower Operating Costs, Too

Unitized sub-assemblies:
Erie Unitized Plants are delivered as packaged sub-assemblies. Batching section includes factory installed control system, batchers, power panel with piping and wiring installed. These features, plus all-welded construction, hinged columns and stack-up field assembly, cut erection costs substantially.

High overhead cement capacity:
Up to 800 bbls. With air cement delivery, this feature can save the entire cost of bucket elevator, silos, receiving screw and motor drives.

Widest range of designs:
Erie has the industry's widest range of established design standards in batching systems, storage silos, aggregate bins, cement and aggregate handling equipment. You can be sure of efficient over-all plant design at lowest installed cost.

Components right from stock:
Assemblies of standard components are usually taken right from stock—an important advantage especially when equipment is urgently needed. Also cuts delivery time on plants of special design.

Single responsibility:
Elevators, screws, conveyors, gates, scale systems, valves, controls and accessories are the products of Erie Strayer. We designed and built them to work together. Should you need service, you'll get it quickly and efficiently.

Government specifications:
Erie is one of the few manufacturers whose equipment meets the rigid specifications of state, federal and foreign governments. This recognized engineering skill is also available to modify existing equipment quickly and inexpensively.

Wide application:
Erie's standard proven models can be applied to the smallest manual scale system, as well as to the high specification projects involving multiple weigh batchers, automatic presets, partial batch selection, interlocks, recorders, etc.

MAY WE SHOW YOU HOW THESE ERIE FEATURES CAN SAVE YOU 25% AND MORE ON TOTAL CASH OUTLAY? WRITE Dept. R-80

NATION-WIDE SALES AND SERVICE

Boston Sand and Gravel's Unitized 200 Yd. plant with 4 aggregate and 2 cement compartments. Automatic aggregate batcher capacity is 8 cu. yds., automatic cement batcher has 56 cu. ft. capacity.

ERIE STRAYER COMPANY

ERIE
BUCKETS & BINS THE WORLD OVER

280 RUDOLPH AVE., ERIE, PA.

WASHINGTON OBSERVER

- Corps-Air Force vie for basebuilding
- Ike sticks to his guns

● **The Army Engineers are worried that the Air Force may take over their biggest job** as a result of the furor over ICBM base construction delays. There's no doubt, insiders say, that the Air Force wants missile contractors—Convair, Martin, Boeing, and the rest—to subcontract the brick-and-mortar work to construction firms, rather than have this done by the Corps of Engineers. There is a billion dollars-plus of construction contracting involved.

The Engineers are fighting back—and of course they have a case to present and political friends to help out. They will resist going the way of the Navy's Seabees.

Right now, the odds are against the Air Force. But the Engineers will be vigorous in clamping tighter controls over their contractors, as Air Force and defense officials have demanded (ENR Aug. 4, p 26).

—

● **President Eisenhower will stick to his position on military spending and public works, regardless of political pressure.** His message to the extra session of Congress this week sticks—with relatively minor modifications—to precisely the same programs and same size programs he laid out in his messages to Congress last January.

Mr. Eisenhower again underscores his determination to resist "budget busting" legislation—without any reference to the Nixon-Rockefeller dominated platform which definitely leans toward spending more. Said the President again: If Congress prefers "other priorities at greater national cost," it must also vote "additional taxes to pay the bill."

Beside defense, Mr. Eisenhower lists a dozen or more pieces of legislation he wants passed. These include many measures that Congress has consistently refused to pass or refused to vote in the form and size that he wants.

Here's a rundown on what he asks and what he's likely to get:

Latin-American aid: Mr. Eisenhower asks Congress to authorize $600 million. This might pass, but there won't be any money voted this session.

School construction: Democrats want more than Mr. Eisenhower wants. A compromise version may be approved and signed. The House Rules Committee is the bottleneck as Congress comes back.

Highway financing: Mr. Eisenhower wants the motor fuel taxes increased, but there's no chance for this. Congress and the new administration will face the financing problem next year.

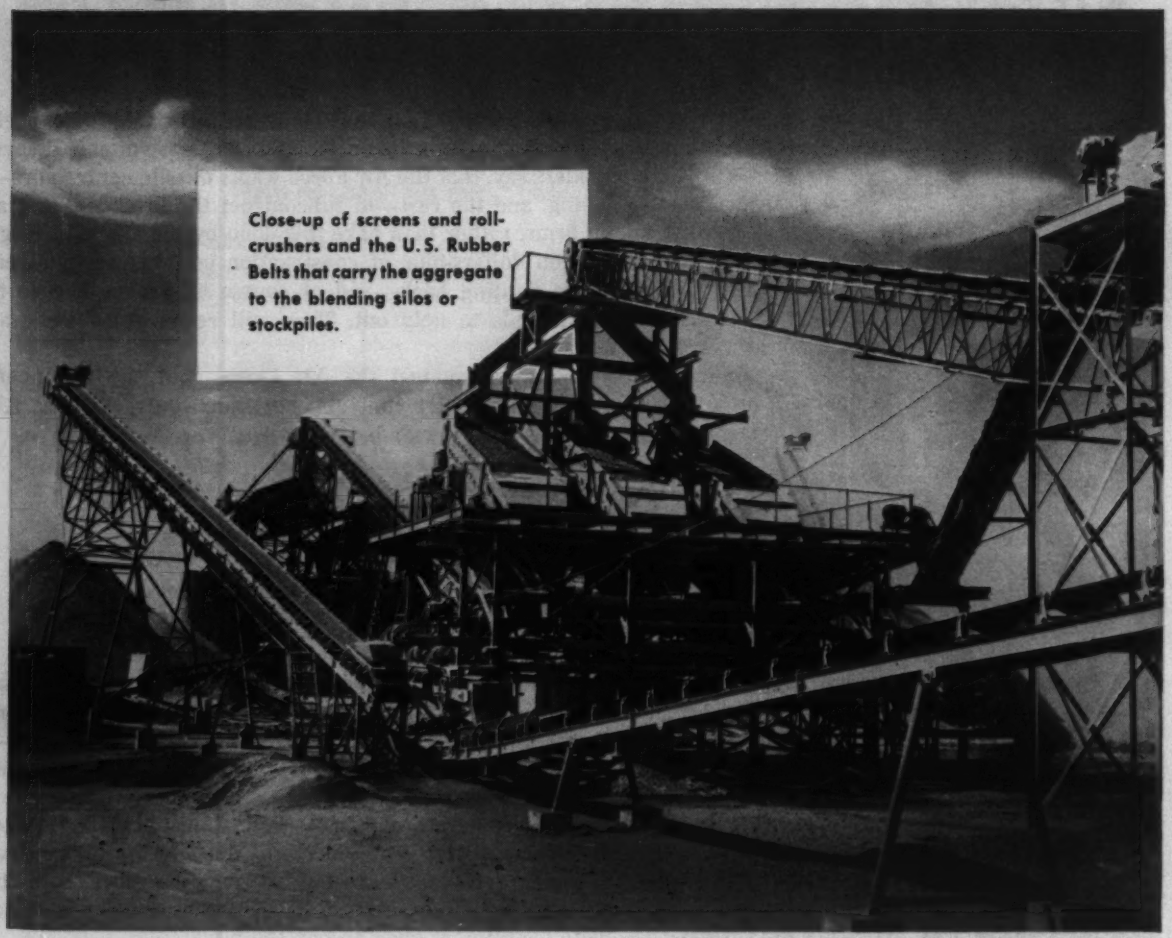
Depressed areas: Mr. Eisenhower has already vetoed Democratic measures; Democrats will try to pass another too late for him to accept.

Interest rate limitation on Treasury bonds: Easing of money supply takes fire out of this issue.

Construction site picketing: House Rules Committee still has measure bottled up; Kennedy and Johnson will try to spring it loose.

Burns Creek hydro project: $50-million project approved by Senate, chances for House passage fair.

US RUBBER CONVEYOR BELTS


Close-up of screens and roll-crushers and the U. S. Rubber Belts that carry the aggregate to the blending silos or stockpiles.

Standard Industries, Inc. gets more tons per dollar with "U.S." Conveyor Belts

The first U. S. Rubber belt to prove this was installed in 1957. It was Matchless® 30" x 4-ply TN cotton-nylon fabric, ¼" top cover, including special impact breaker with 1/32" bottom cover. It was used on a drive that rapidly wore out ordinary belts. Each "U. S." Belt has lasted an average of 4 times longer in continuous operation, proving that more tons per dollar come from the use of "U. S." Belts.

With this graphic proof of performance, the new plant of Standard Industries (Tulsa, Okla.) was completely equipped with "U. S." Conveyor Belts in its crushing and loading facilities.

"U. S." Conveyor Belt engineers stand ready to duplicate their "more tons per dollar" service in your plant. Whether you simply require a replacement or would like a complete study of your facilities, you can reach the U. S. Rubber man through your local U. S. Rubber distributor.

US RUBBER

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

With the start of construction on a 17½-mile bridge and tunnel crossing . . .

Chesapeake Bay Dream Comes True

A long-time dream will begin to come true next month when work starts on the 17½-mile bridge and tunnel crossing of lower Chesapeake Bay. Final roadblock was removed last week by sale of a $200-million bond issue to finance the project (ENR Aug. 4, p. 15).

The fixed crossing will be a vital link in an important route from New York and Philadelphia to Florida, bypassing Baltimore, Washington and Richmond. It will extend from the southern tip of the Delmarva Peninsula to the vicinity of Norfolk, and will replace present ferry service.

One of the longest open-water crossings in the U. S., the project will include nearly 12 miles of low-level trestle, an earthfill causeway, two tunnels (each slightly over one mile long) and two steel fixed bridges. The project also includes about five miles of approach highways.

The exposed position of the crossing, depth of water, and large amount of marine traffic are expected to make construction operations both interesting and difficult.

Construction of the tunnels, trestle, substructures, bridge slabs and handrails, causeway, and all electrical work will be done for the Chesapeake Bay Bridge and Tunnel District by a joint venture of four major heavy construction firms: Merritt-Chapman & Scott Co., New York City; Raymond International, Inc., New York City; Tidewater Construction Corp., Norfolk; and Peter Kiewit Sons' Co., Omaha. Contract price for this portion of the work is about $121.8 million, including about $5 million for contingencies.

American Bridge Division of U. S. Steel Corp. will build the superstructures of the Fisherman Inlet and North Channel bridges at a cost of about $2 million.

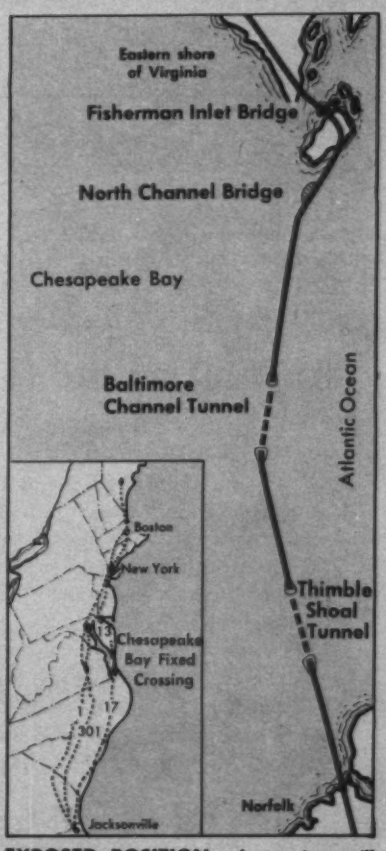
Sverdrup and Parcel, St. Louis consulting engineers, designed the two land crossings. Wilbur Smith and Associates, New Haven, prepared the traffic forecasts.

The low-level trestle is composed of a series of 75-ft-long prestressed concrete spans and precast concrete caps supported by hollow cylindrical prestressed concrete piles. Design is generally similar to that used on the crossings of Pensacola Bay (ENR July 21, p. 45) and Lake Pontchartrain, La. (ENR Aug. 30, 1956, p. 30).

Concrete piles are 54 in. in diameter with 5-in. wall thickness. They will be centrifugally cast in 16-ft sections and post-tensioned. Piles will be sand filled to help resist any shock of collision by small boats or ice floes. A typical bent has three piles, the outside piles being on a 1:12 batter. They will vary in length from 55 to 130 ft.

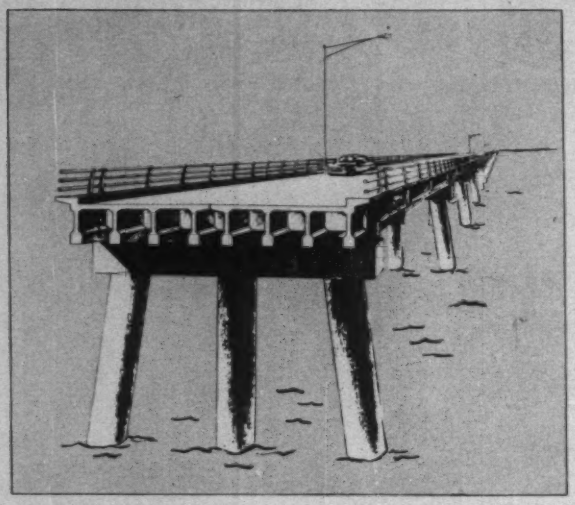
Precast concrete caps will be anchored to the piles with mild steel reinforcing extending downward from the cap into the pile interiors.

(Turn the page)

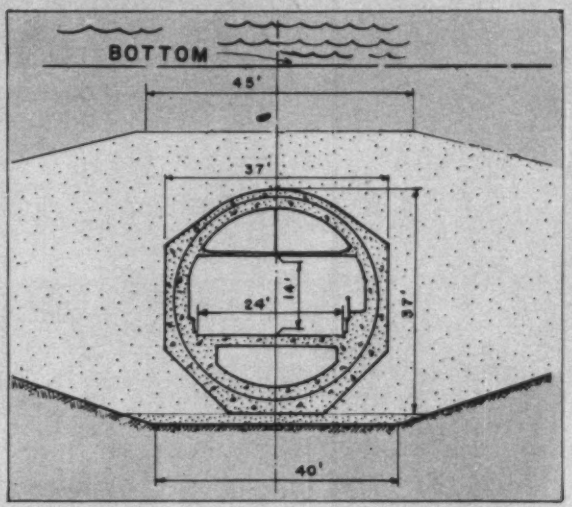


EXPOSED POSITION of crossing will make construction operations difficult.

. . . Over and under Chesapeake Bay



OVER—Prestressed concrete spans on prestressed piles.



UNDER—Trench tunnel of prestressed concrete sections.

One deck unit comprises four 75-ft-long double-T prestressed concrete girder units, post-tensioned transversely after erection. The 4-ft-deep girders are spaced 4 ft 2 in. c-c and pretensioned longitudinally with ⅞-in. strands stressed to 175,000 psi. The 28-ft roadway will be surfaced with asphaltic concrete.

Except for length, the two tunnels have the same design. Tunnel ends are located on artificial islands about 1,450 ft long and 230 ft average width at the top, with the island surfaces about 30 ft above mean low water. Islands will be formed of sand dredged from the bottom of the bay and protected by layers of gravel, quarry rock or tailings, and heavy rip-rap.

Tunnels will comprise precast concrete sections about 200 ft long sunk in a prepared trench and covered with selected backfill. Approaches are in open cut in the sand islands. Roadway width is 24 ft and vertical clearance 14 ft. Ascending and descending tunnel grades are 4%.

Length of the Thimble Shoal Channel is 5,738 ft and the top of the tunnel structure is 72 ft below mean low water at the lowest point. The channel will be 50 ft deep over a width of 1,900 ft, with 40-ft depth extending to 2,500-ft width. Length of the Baltimore Channel tunnel will be about 5,450 ft, which provides a clear channel 50 ft deep and about 1,700 ft wide.

The 1,356-ft bridge over Fisherman Inlet is a three-span welded deck girder with concrete trestle approaches similar to the low level trestle. The 175-ft center span provides 40-ft vertical and 110-ft horizontal clearance. Pile bents and piers will be supported on 54-in. cylindrical prestressed concrete piles. A cofferdam method of construction is anticipated.

The North Channel bridge has 17 spans and total length of 3,795 ft between low level trestles. The main channel is crossed by a 325-ft through truss that provides 75-ft vertical and 300-ft horizontal clearance. Truss approaches are continuous riveted deck plate girder spans. The substructure consists of two-column piers founded on steel H-piles from 68 to 132 ft long.

The earthfill causeway on and near Fisherman Island has a length of about 9,000 ft. Across the island, the roadway is carried on an embankment about 15 ft high. Roadway width is 24 ft with a 10-ft shoulder on each side. The fill is projected into Fisherman Inlet to a point where a bridge structure becomes more economical.

The length of crossing precluded use of ordinary surveying methods during preliminary mapping and soil explorations. To establish boring locations, continuous-wave radio transmitting and receiving equipment was used on a boat and on two shore stations. Drilling towers were built at selected locations and borings made. Then radio equipment and sonar were used together in an unusual way to map subsurface materials between boring locations.

Sverdrup and Parcel will supervise construction of the project. Engineers expect to establish fixed towers at key locations in the bay to serve as survey control points.

. . . It all started four years ago

Plans for the Chesapeake Bay crossing were first unveiled in February, 1956, when the state legislature was asked to provide $500,000 for traffic surveys. Request granted, traffic consultants were retained in August of the same year. A year later, their route recommendations were made and cost estimates followed from the design engineers.

Contractors were named in July 1958, and the sale of revenue bonds was scheduled for the same year. But it was not until 1959 the issue was mentioned, a year of tight money and wary investors.

Even the 5.75% interest rate on the $210 million in bonds was unattractive. Institutional investors wanted security, as well as yield. The bond underwriters reshaped their proposals: $70 million of 4.875% first pledge bonds; $30 million of 5½% second pledge bonds; and $100 million of third pledge bonds. The institutions spoke for the first and second pledge series, and it was up to the public to grab the rest. Last week, it did—eagerly. And the big job is off and running.

On Congress' Must List: Construction

- **School aid, public works and housing bills are sure to come out of the short session.**
- **Possible also is a bill to permit picketing at construction sites—it's Kennedy's baby.**

Capitol Hill, usually given over to tourists in the months preceding a national election, swarms with disgruntled Congressmen this week. They've trooped back to Washington and a stack of unfinished business and some new matters.

They're unhappy about sweltering through Washington's August heat instead of campaigning back home. But ahead of them lies some important legislation, including appropriations of billions of dollars—much of which will find its way into the construction industry.

Although there will be plenty of political bombast, chances are final action will be taken on these measures:

• **Aid to education**—Either a House or Senate version would provide about $1 billion in matching funds for school construction.

• **Public works**—Probably one of the first orders of business as the Senate reconvenes this week, the measure calls for $4.03 billion, including substantial sums for Corps of Engineers reclamation and power projects. More cash might be added.

• **Housing**—Separate Senate and House bills are awaiting House action; both call for spending more than $1 billion through different routes.

Other important legislation that probably will come out of Congress by the end of the month: minimum wage revision; foreign aid appropriations; Social Security revisions, including the controversial program of medical care for the aged.

Easing of Taft-Hartley restrictions on situs picketing may make it, but chances are slimmer because of deep disagreement among Democrats on the measure.

The construction picketing bill, which Senator Kennedy introduced, could shape up as an important test for his campaign for President. It will probably get through the Senate, but there is much resentment against it in the House and it could well die in the conservative-dominated Rules Committee. The measure would allow employees of a single contractor to picket a construction site, meaning that union employees of other contractors would refuse to cross the picket line, holding up the entire job. Such picketing at a construction site is now barred by the Taft-Hartley law.

How long the lawmakers will stay on the job is still doubtful. Despite a Labor Day adjournment target, some congressional observers think such hotly disputed measures as old age medical care and situs picketing could each consume a week of debate in the Senate. What's more the House Rules Committee could well prove to be a bottleneck and throw out of whack all timetables set up by congressional leadership.

The full House right now has little on its docket, and unofficial word has gone out to members that they really needn't show up until August 22, a week after the official House convening date. Come Labor Day, however, the lure of the campaign trail will be hard to resist for congressmen, regardless of how much business remains unfinished.

Here's a brief rundown on the status of the major bills before Congress:

Public works appropriations await action on the Senate floor. The Senate is expected to add new money to the House bill, which means it will go to a House-Senate conference, where even more money could be added. Democrats would gleefully override an Eisenhower veto, says one Senate observer, and probably will bait him to try a veto by fattening the bill. As passed by the House it called for $3.9 billion. It was upped to $4.03 billion by the Senate Appropriations Committee, including $812.7 million for Corps of Engineers construction funds; $235.2 million for Bureau of Reclamation construction funds and $223 million for Atomic Energy Commission construction and plant acquisition costs.

Aid to education is pending before the House Rules Committee. Before Congress recessed in July, the committee tied on reporting a bill out for a conference to iron out differences between House and Senate bills, which means it's bottled up by only one vote. Democratic leaders will apply plenty of pressure on the committee to get the measure to conference. Both bills call for about $1 billion in matching funds for school construction.

Housing legislation also pends before the House. A Senate version is at Speaker Sam Rayburn's desk and must go to the Rules Committee for further action. A House bill pends before the Rules Committee, which failed to report it just before the recess. It's considered certain housing legislation will be acted upon, but which version is a toss-up. Both bills provide about the same amount of money: $1.36 billion by the House; anywhere from $1.25 billion to $1.4 billion by the Senate depending on how you figure. But the Senate bill includes 25,000 public housing units, compared with none in the House version. The other main difference is that the Senate measure would spread spending over a longer period. The House bill would introduce a number of new housing programs and stands a better chance of an Eisenhower veto.

There are also two versions of the minimum wage bill, both pending before the Senate. The House-passed bill, awaiting committee action, would hike the present $1 an hour minimum to $1.15 and extend coverage to 1.4 million additional retail chain store employees. The Senate bill, sponsored by Senator Kennedy, would step up the minimum wage in three yearly five-cent increases from $1.15 to $1.25 and extend coverage to 4.9 million more workers. Best guess now is that some form of the Senate bill will finally pass.

Social Security legislation includes the controversial medical care for the aged program, plus minor revisions and broadening of general Social Security laws. Pending before the Senate Finance Committee is a House-passed measure which includes a voluntary program of old age medical care that bypasses the Social Security framework. Chances are good now that old age care will be put back into the Social Security system and will include limited hospital and nursing home benefits for old folks. It's likely, however, that the minimum age for benefits will be raised to 68 or perhaps as high as 72 and that the hospitalization provisions will be trimmed.

Foreign appropriations will have their traditional last-place position on the calendar. The measure is still pending before the Senate Appropriations Committee, but the House cut about $780 million from the Administration's request of $4.18 billion. Traditionally, the Senate restores part or all of the House cuts in foreign aid. There's also a good chance that supplemental appropriations, for such things as the emergency earthquake disaster relief to Chile and aid for the Congo, will be tacked on to the final measure.

Suspended Span for LA Harbor

The California Department of Public Works will call for bids in September for a $20-million, 1,500-ft span suspension bridge across the main channel at Los Angeles Harbor. It will be the first suspension bridge to be built in California in more than 20 years.

The four-lane bridge will replace a ferry service connecting San Pedro with Terminal Island. Clearance above the ship channel will be 185 ft. In addition to 506½-ft-long side spans, the structure has approach viaducts of welded steel girders extending 1,841½ ft on the west side and 1,708 ft on the east. Maximum grade is 6%.

Bid call will be divided into two separate contracts, one for the substructure and one for the superstructure. Main foundations located at the edge of the ship channel will be composed of steel piles. Contract for approach roads will be bid and awarded next year.

Designers originally provided the 52½-ft-wide roadway with open grill sections between lanes. This followed practice adopted at the Second Tacoma Narrows Bridge to increase aerodynamic stability of the deck structure. However, wind tunnel tests indicated that a solid concrete deck design would be better.

To provide horizontal stiffness, the concrete deck is tied to the vertical stiffening trusses, which are 15 ft deep c-c of chords or 16½ ft deep over-all. Tie plates anchored into the slab will be welded to the trusses to make a rigid connection. Thus the road deck acts as a top lateral system.

A steel bottom lateral system forms a complete box-like structure for the deck system. And additional stiffness is provided by transverse floor system trusses at each suspender cable point.

Main cables will not be hung vertically; they will be pinched in slightly at the bridge deck. The cables will be 66½ ft on centers at the towers and only 59 ft 5 in. on centers at mid-span. This provides additional stiffness to the entire cable-deck assembly to help resist wind drift.

Costs of construction will be repaid by tolls. Parts of the financing is provided by a $7-million bond issue. The additional $13 million needed for construction, right-of-way and engineering will come from state, county and city highway funds.

Bids are in, but planner challenges location of . . .

Bay State's Largest Bridge

The largest single bridge in the history of the Massachusetts Department of Public Works will span the Taunton River between Fall River and Somerset. Estimated to cost $21.5 million, it will be a 5,780-ft high-level structure (135-ft clearance above mean high water) on Interstate Route 195. A through cantilever steel truss will comprise the three main spans.

Bids were opened last week for initial construction. Apparent low bidder for the substructure was the Dravo Co. of Pittsburgh, at $7,197,555. Designed by E. Pichel Inc., consulting engineer, the bridge is scheduled for completion in 1964.

But there's a catch. A congressional committee has been asked to hold up start of construction on the bridge on the allegation that it is contrary to the public interest and that plans for its location are "a disgrace to the profession of American civil engineering."

The challenge to the project came from Eugene L. Belisle, former planning advisor to the Fall River Planning Board, who last week wrote a strong letter of protest to Rep. John A. Blatnik (D., Minn.), chairman of the House Public Works subcommittee investigating the federal highway program.

In his letter, Mr. Belisle charged that the Massachusetts Department of Public Works has never permitted access to the consulting engineering reports.

"It may be that engineering information and analyses of adequate validity may justify the location of the bridge as now planned," he continued, "but the location cannot be justified on the basis of the engineering study which recommended it."

A spokesman for the DPW said Mr. Belisle had appeared at public and other hearings before the bridge site was chosen.

The bridge will carry six lanes of traffic on twin 42-ft-wide roadways separated by an 8-ft median; a 6-ft partial shoulder and 1½-ft safety walk will be built on each side.

The three main spans have a total length of 1,600 ft; center span is 840 ft long. Engineers chose the riveted through cantilever truss design on the basis of economy, structural adequacy, and pleasing appearance. Two identical trusses spaced 101 ft 4 in. c-c support an 8-in. reinforced concrete deck slab. The trusses vary in height from 60 ft at the portal of the anchor span and the center of the main span to 100 ft over the piers. Six-foot-high floor beams extend between truss verticals and support 27-in. WF rolled stringers spaced 6 ft c-c.

Approach spans will be steel riveted deck plate girders. On the Somerset side, approach spans will be about 200 ft long; on the Fall River side, 165 ft. Twin 12-ft plate girders are spaced 55 ft c-c. Expansion joints divide the approach structures into 600-ft lengths.

Low-alloy steel will be used in the plate girders, floor beams and heavily stressed truss members. All other steel will be structural carbon grade. High-strength bolts will be used for all field splices.

The substructure will be supported by steel bearings piles, except for two piers and the abutment on the Fall River side. Those three units will rest on spread footings founded on bedrock.

Cost of Seattle Sewer Plan Escalates

A new report by consulting engineers puts a higher price tag on the Seattle area's proposed 10-year sewerage construction plan. Estimated previously at $83 million to $120 million, the program will cost $134 million according to the latest estimates of Metropolitan Engineers, a four-firm combine of consultants headed by Brown & Caldwell of San Francisco.

Construction will begin next year on the first elements of the program if bonding authority of the Municipality of Metropolitan Seattle is upheld in court action now pending. "Metro," as the agency is called, was created to serve a 230-sq-mile area around Lake Washington and Puget Sound, including the City of Seattle and 10 other incorporated municipalities. Area residents voted the agency into being two years ago.

Metropolitan Engineers is still under contract to Metro. The engineering firm is expected to complete designs by August 1, 1961, for two pumping stations—a 130-mgd station on Lake Washington at Lake City and a 42-mgd station on Elliott Bay, an arm of Puget Sound.

The design firm's contract also calls for final plans and specifications for a $7.5-million tunnel connecting the Lake City sewer system with the Seattle (city) system, a $6-million system of intercepting sewers in the Renton-Bryn Mawr area on Lake Washington, and a $14-million treatment plant at Renton with an initial capacity of 24 mgd.

Bids for the Renton plant, as well as for a 118-mgd plant at West Point on Puget Sound, will be called in 1962-63.

Metro hopes to discharge digested sludge from the plants into Puget Sound. But if the State Pollution Control Commission turns down this plan, Metro will consider the Zimmermann wet-oxidation process (ENR Nov. 27, 1958, p. 44).

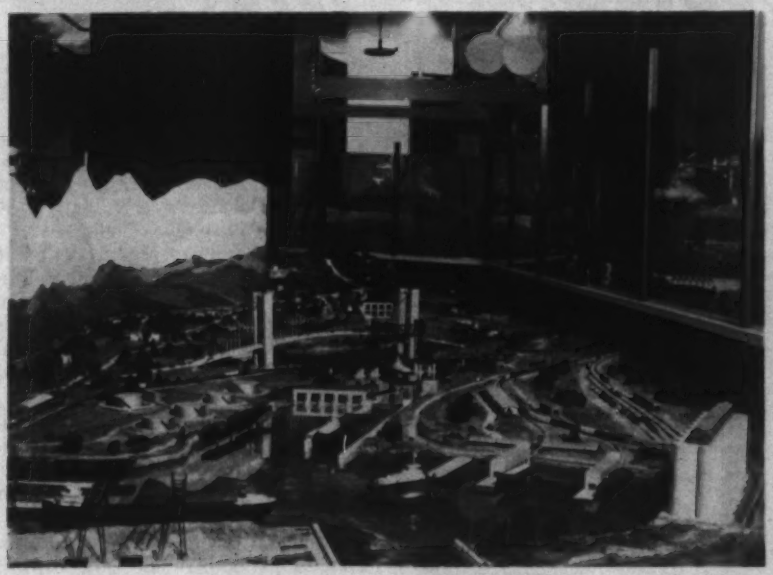
Inflation, tax increases and additional work ran the price up. Previous estimates were based on 1958 prices and did not include a 1959 sales tax hike, explained David H. Caldwell, project manager for Metropolitan Engineers. The higher price also includes some work not figured in earlier estimates, but the basic program, aimed at ending pollution of Lake Washington and Puget Sound (ENR May 29, 1958, p. 24), is unchanged.

Metro's current legal involvement arose from a court decision validating the City of Seattle's right to contract with Metro to dispose of city sewage. Challengers have appealed to the Washington State Supreme Court to get a ruling on whether Metro can sell revenue bonds to finance its operations.

The new report by the consultants indicates that the $134-million cost of the 10-year program can be met with $123 million in bond proceeds and an $11-million surplus from residential service charges beginning in 1962.

Metro is meeting its current administrative expenses with loans from some of its members. Engineering costs, totaling $400,000 for the 1960-61 fiscal year, are being paid with federal loans.

Besides Brown & Caldwell, which prepared a 1958 report dealing with Seattle-area pollution, the engineering combine includes three Seattle firms: Hill & Ingman, Carey & Kramer, and R. W. Beck & Associates.



Corps of Engineers exhibit shows . . .

What to Do With a Rainy Day

All phases of water resources development are demonstrated in a permanent model supplied to Chicago's Museum of Science and Industry by the U. S. Army, Corps of Engineers. Idea for the 70-ft-long model was conceived by Alfred Rosenthal, Chief, Technical Liaison Branch, North Central Division.

When a viewer pushes a button the entire exhibit area turns dark, thunder booms, lightning flashes and it begins to rain over the headwaters area. Then an automatic sound system tells the viewer how Army Engineers harness the rain water while a series of overhead spotlights illuminate specific points of interest as the story unfolds.

The model depicts the operation of a multi-purpose reservoir serving flood control, water conservation and hydroelectric power. Also shown are hydraulic dredging, flood wall and levee construction, river and harbor projects, navigation locks and dams, navigable bridge crossings and major harbor projects.

The exhibit is the only one of its kind, according to museum officials.

Detroit Votes $50 Million For More Storm Drainage

Detroit's voters last week authorized the city to float a $50-million bond issue that will provide for continuation of a master storm sewer plan into the year 1964. Detroit property owners have okayed $125 million in storm sewer construction since 1957.

Frequent flooding of basements, streets and expressways has spurred the city to act on this scale (ENR Sept. 3, 1959, p. 27).

The bond authorization allows for 41.3 miles of storm relief sewerage. Included are 27.3 miles of major relief sewers that will range in diameter from 10 to 16 ft. Biggest of these trunk lines is the First-Hamilton relief sewer that will run over eight miles and cost $18.9 million.

Fourteen miles of connecting arm or internal relief mains run from 5 to 10 ft in diameter and will be built at various points throughout the city to relieve local flooding.

Junior High School Texas Style

The 2,000-student Abilene Junior High School, now under construction in Abilene, Tex., consists of 10 air-conditioned single-story buildings, with covered walkways providing protected connecting passages between buildings.

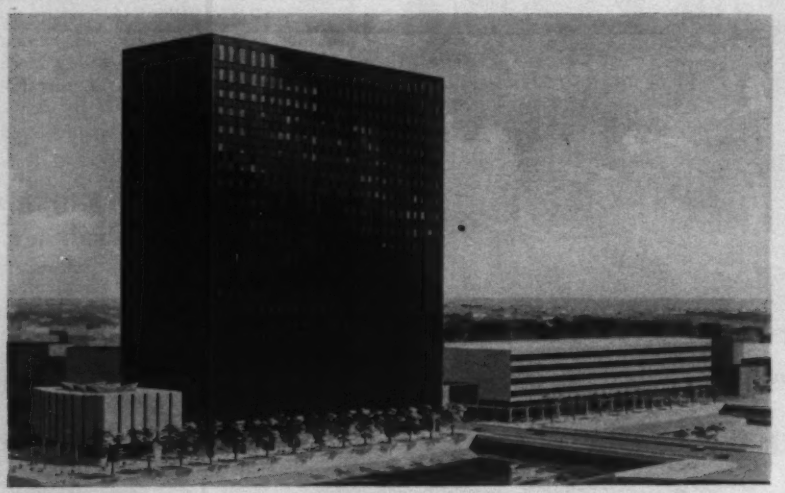
Total cost of the school, including fixed equipment, is $2.74 million. Cost per sq ft: $11.78.

The 10 individual structures are the auditorium, gymnasium, fine arts building, cafeteria, science building, three-wing classroom building, library, administration building, shops, and field house. Together they comprise an area of 221,427 sq ft. Covered passages have an additional area of 37,356 sq ft.

The library is a circular structure with a steel framed roof that looks like folded plate construction, but isn't. The effect is created by arranging the steel roof beams like the spokes of a wheel and alternately raising and lowering them at the exterior wall. All buildings and covered walkways are of structural steel frame construction.

Classrooms rely completely on artificial light and are wholly air conditioned with individual controls in each room. Minimum use of glass in the walls is expected to reduce outside noise.

Two firms are responsible for the architecture: Tittle and Luther; and Boone and Pope. Jerry Rosser was structural engineer. There are three general contractors: Rose Construction Co., Shiflet Brothers, and White and Everett. All are from Abilene.



Office Tower Will Straddle Bank

A 23-story office building will go up over an existing four-story bank building, which will stay open while construction proceeds around and above it.

The office building is part of an $18-million redevelopment project in Milwaukee, Wis. Also included are a new bank building adjoining the office tower, a parking pavilion and a park plaza.

Construction starts this month, with completion scheduled for spring, 1962.

Two story-height trusses between the third and fourth floors will span 75 ft across the bank building. Each truss will carry two interior columns supporting loads from 20 floor levels above. Two similar trusses between the first and second floors will carry exterior columns over the existing building's foundations. The trusses will probably be shopwelded and shipped to the site as units.

The extra-heavy loads of the truss-supporting columns lead to a continuous foundation mat design instead of isolated pile caps. Mat thickness will decrease from about 5 ft 6 in. at columns to thinner sections between columns. Piles will be steel H-sections.

Architects Harrison and Abramovitz of New York City have proposed marble wall facing for the new bank building adjoining the office tower.

Robert E. Rasche of Milwaukee is associated architect with Harrison and Abramovitz. Edwards and Hjorth are the structural engineers, and Moran, Proctor, Mueser and Rutledge are foundation co nsultants. Both firms are from New York City. Turner Construction Co. of New York City is the general contractor.

Project owner is Wisconsin Clybourn Urban Redevelopment Corp. of Milwaukee. Equitable Life Assurance Society of the United States will provide a $14-million loan to finance construction.

Work Starts on Hospital Designed Against Fallout

Construction is under way on the first radiation-sheltered hospital approved and financed by the Office of Civil and Defense Mobilization (ENR Sept. 24, 1959, p. 21).

It is the Southwest Texas Methodist Hospital in San Antonio, planned ultimately to cost $20 million. First-stage construction, priced at $5.1 million, is for a 175-bed hospital with all essential services located in two underground levels.

Central building of the over-all plan, developed by Phelps, Deweews & Simons and associate architects Page, Southerland & Page, is in the form of an H with fat legs.

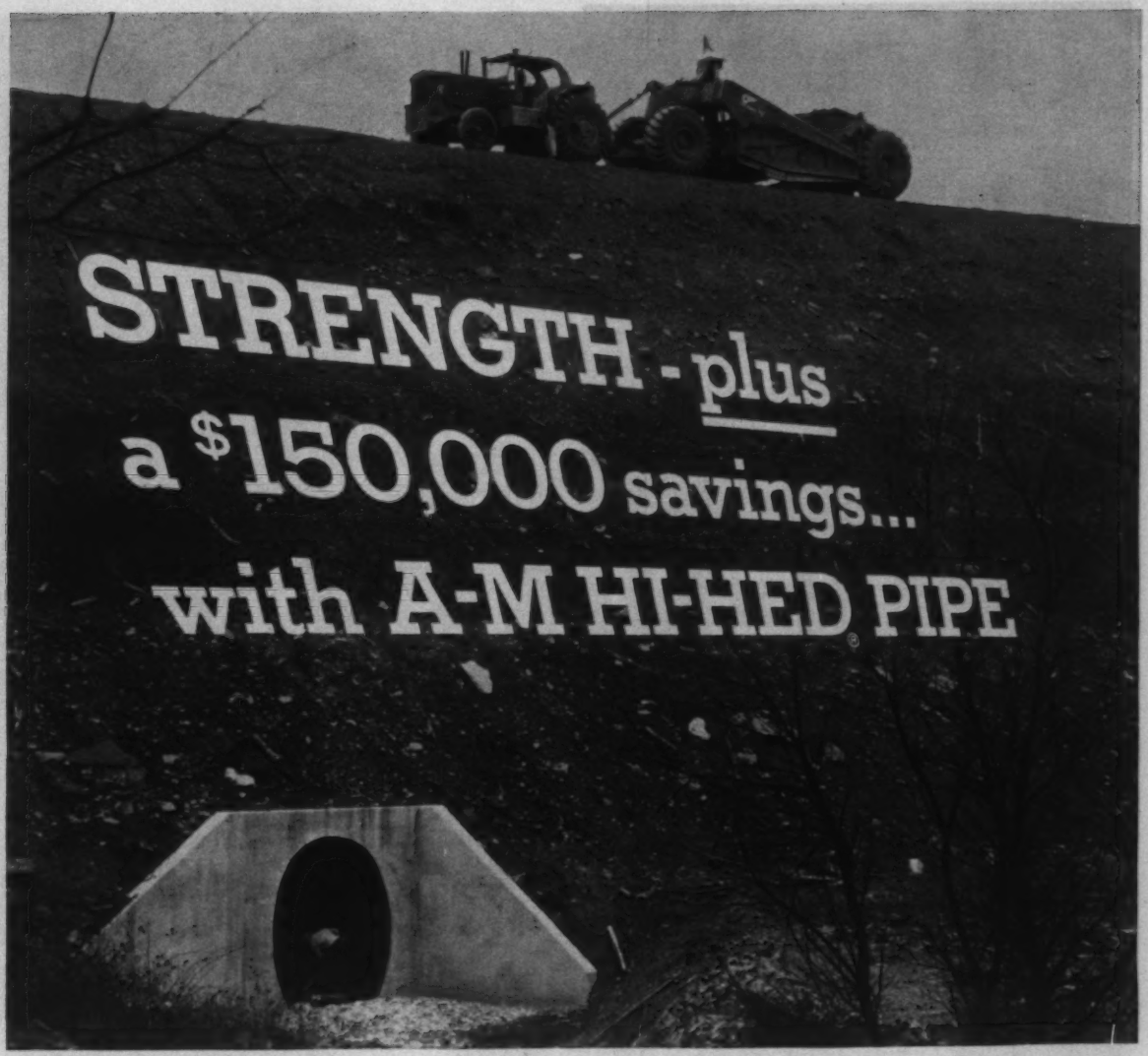
Structural frame is reinforced concrete with both waffle and flat-slab floors. Above ground, five floors measuring 77x218 ft are a typical hospital. Below grade is a different story.

The underground survival complex occupies two floors, 152x295 ft.

Thickened concrete foundation walls —up to 30 in. in some sections—and lead-lined doors will give the survival area an attenuation factor of over 1,000 against radioactive fallout.

The air-conditioning system is a high-velocity, double-duct type for both summer and winter conditioning. The air purification system is supplemented by additional filtering equipment for removal of "hot" fallout material. Also below ground is a water well and a standby power unit.

Walsh & Burney, the general contractor, has a 700-day contract limit.



STRENGTH was the first requirement for a 4,000 foot drainage structure under the new east-west runway at Greater Pittsburgh Airport. Precast concrete Hi-Hed pipe provided this essential strength (50% stronger on the average than equivalent size round pipe), plus a big bonus in the form of an estimated saving of $150,000—approximately 18% savings over competitive material.

Versatile A-M Hi-Hed Pipe is designed for minimum vertical load and maximum lateral support . . . saves trench width in congested areas . . . is readily available in sizes up to 144″ round pipe equivalent from plants strategically located throughout the nation. Write today for illustrated Hi-Hed brochure.

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

announcing

NEW MARIONS

MARION POWER SHOVEL COMPANY

A Division of Universal Marion Corporation

MODEL	SHOVEL (CU. YDS.)	BACKHOE (CU. YDS.)	CRAWLER CRANE CAPACITY (TONS)	PCSA RATING
45-M	1¼	1¼	30	10-102
47-M	*	1¼	40	12-141
65-M	1½	1½-1¾	50	12-165
75-M	1¾	2-2¼	60	12-204
77-M	*	2-2¼	75	12-278

*Not Available as a Shovel.

Now — power-packed and ready to go, you'll find this new series of Marion machines offer the versatility in range and capacity to fit your specific needs. New! From the ground up! Major excavator design improvements that let you "custom-select" standard and optional features as they are needed. And, they can be added or removed on the job site! 13 different front end combinations . . . 4 different power and transmission arrangements . . . and a host of work-saving optional features combine to do swift justice to any of your job requirements, from a simple trenching operation to a multi-million dollar highway project. In league with six other basic models in Marion's contractor line, you'll find dipper ratings from ¾ to 5 cubic yards . . . crane capacities from 15 to 100 tons. Which Marion is best for your job? You can get a ready answer from your nearest Marion distributor.

"the fastest growing line in the industry"

Marion, Ohio, U.S.A. **MARION**

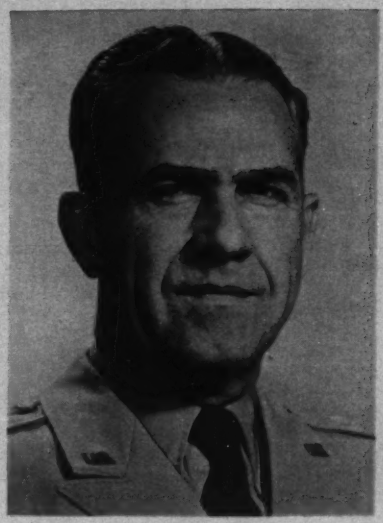
Engineer Generals Go to the World's Fair

Robert Moses, president of the New York 1964-1965 World's Fair Corp., has a sharp eye for old soldiers who have not faded away. He has hired two retiring generals of the Army Corps of Engineers, ages 55 and 51, to fill top posts in his organization.

The older, Maj. Gen. W. E. Potter, has been named executive vice president, while Brig. Gen. William Whipple, Jr., has been chosen chief engineer for the project.

General Potter, whose last job in the Corps was Governor of the Panama Canal Zone and president of the Panama Canal Corp., graduated from West Point in 1928. His civil engineering degree came from Massachusetts Institute of Technology in 1933. Since the war, when he served in Europe, he has been District Engineer at Kansas City, Assistant Chief of Engineers for Civil Works and Missouri River Division Engineer during the time (1951-56) that Garrison and Fort Randall Dams were carried to completion and Oahe and Gavins Point Dams were started.

He is being succeeded in Panama by Maj. Gen. W. A. Carter, who had been president of the Mississippi River Commission and Division Engineer of the Lower Mississippi River Valley Division.



Maj. Gen. W. E. Potter

Brig. Gen. William Whipple, Jr.

General Whipple, who retires as Division Engineer, Southwestern Division, Dallas, graduated from West Point in 1930. A Rhodes Scholar, he got his B.A. and M.A. from Oxford University. In 1936, he received a degree in civil engineering from Princeton University. From 1947 to 1950, as District Engineer, Walla Walla, Wash., he was in charge of the construction of McNary Dam on the Columbia River.

Around the World . . .

• **More for the arts**—A 40-story office building containing TV and radio studios will go up across the street from New York City's big cultural center project, Lincoln Center for the performing Arts, now under construction. Sponsor of the TV-radio building, American Broadcasting-Paramount Theatres Corp., plans to start construction in 1965.

• **Depot for Denver**—The U. S. General Services Administration has named Paul R. Reedy and Ken R. White, both Denver consultants, as designers of a $7.2-million federal supply depot. Construction bids will be invited in March 1961.

• **Getting ready**—A special committee will study and evaluate the position of the American Road Builders' Association on highway financing in preparation for convening of the 87th Congress in January.

• **Hot-mixers pick Texas**—Research offices of the National Bituminous Concrete Association's $1.3-million quality improvement program will be located at Texas A&M College.

• **New broom**—The newly elected Liberal government of Quebec has stopped work on $26 million worth of bridge construction at the west end of Montreal Island, pending review of plans prepared under the previous administration.

• **Israelis plan new seaport**—The World Bank will finance the $30-million first phase of a new deep-sea port at Ashdod, Israel, about 75 miles south of Haifa. Backers hope to call for bids in late September. Frederic R. Harris Inc., New York consulting engineer, is designer.

• **Boston stadium**—Construction of a $16-million stadium, capable of seating 51,000 people under a retractable dome roof, will begin this fall in Boston. Other facilities on the site will raise the cost to $25 million. Metcalf and Eddy of Boston are architect-engineers.

• **Record foreseen**—Gas utilities and pipeline companies will spend an estimated $2.2 billion this year for plant and other facilities. It will be a new record.

• **Improvement in San Diego**—A record capital improvement budget of $33.7 million has been approved informally by the San Diego City Council. About $13 million will go for water projects, but the total would also include construction of the largest number of buildings in a fiscal year; three fire stations, two police stations, a branch city office building and two libraries.

• **Indiana highway building**—The Indiana Highway Department will spend $254.1 million for highway construction in the two-year fiscal period ending June 30, 1962. The Interstate will claim $141.8 million. Also planned are outlays of $60 million for primary roads; $17.8 million for secondary roads; and $41.4 million for urban streets.

• **Vienna airport finished**—A recently completed airport building, costing $7 million, concludes a $10-million reconstruction program at Vienna's Schwechat airport. The new building comprises a 120-ft-high control tower, a radar central office and a weather bureau.

HALF the world is half asleep! Men who could be making *twice* their present salaries are coasting along, hoping for promotions but doing nothing to bring themselves forcefully to the attention of management.

They're *wasting* the most fruitful years of their business lives . . . throwing away thousands of dollars they may never be able to make up. And, oddly enough, they don't realize—even remotely—the tragic consequences of their failure to forge ahead while time is still on their side.

Engineers and other technically-trained men are particularly prone to "drift with the tide" because their starting salaries are reasonably high and promotions come at regular intervals early in their careers. It isn't until later—too much later in many cases—that they discover there is a definite ceiling on their incomes as technicians.

Send for Your Free Copy of "Forging Ahead in Business"

If you want to discover how to succeed while you are still young—if you want to avoid the heartbreak of failure in later years—send today for "*Forging Ahead in Business*" . . . one of the most practical and realistic booklets ever written on the problems of personal advancement.

Here you will find—not a "pep-talk," not an academic lecture—but cold, hard *facts* on how to improve your position and increase your income. You will be told what the qualifications of an executive are in today's competitive market . . . what you must *know* to make $15,000, $20,000 or more a year . . . what you must *do* to accumulate this knowledge.

"Forging Ahead in Business" was written for mature, ambitious men who seriously want to get down to bed-rock in their thinking about their business future. If you feel it is meant for you, simply fill in and return this coupon. Your complimentary copy will be mailed to you promptly.

Detach and return the business reply card . . . or use the coupon below . . . to obtain your free copy of "Forging Ahead in Business."

ALEXANDER HAMILTON INSTITUTE
71 West 23rd Street, New York 10, New York

ALEXANDER HAMILTON INSTITUTE
Dept. 265, 71 W. 23rd Street, New York 10, N. Y.
In Canada: 57 Bloor St., W., Toronto, Ontario, Canada

Please Mail Me, Without Cost, a Copy of Your 48-Page Book—

"FORGING AHEAD IN BUSINESS"

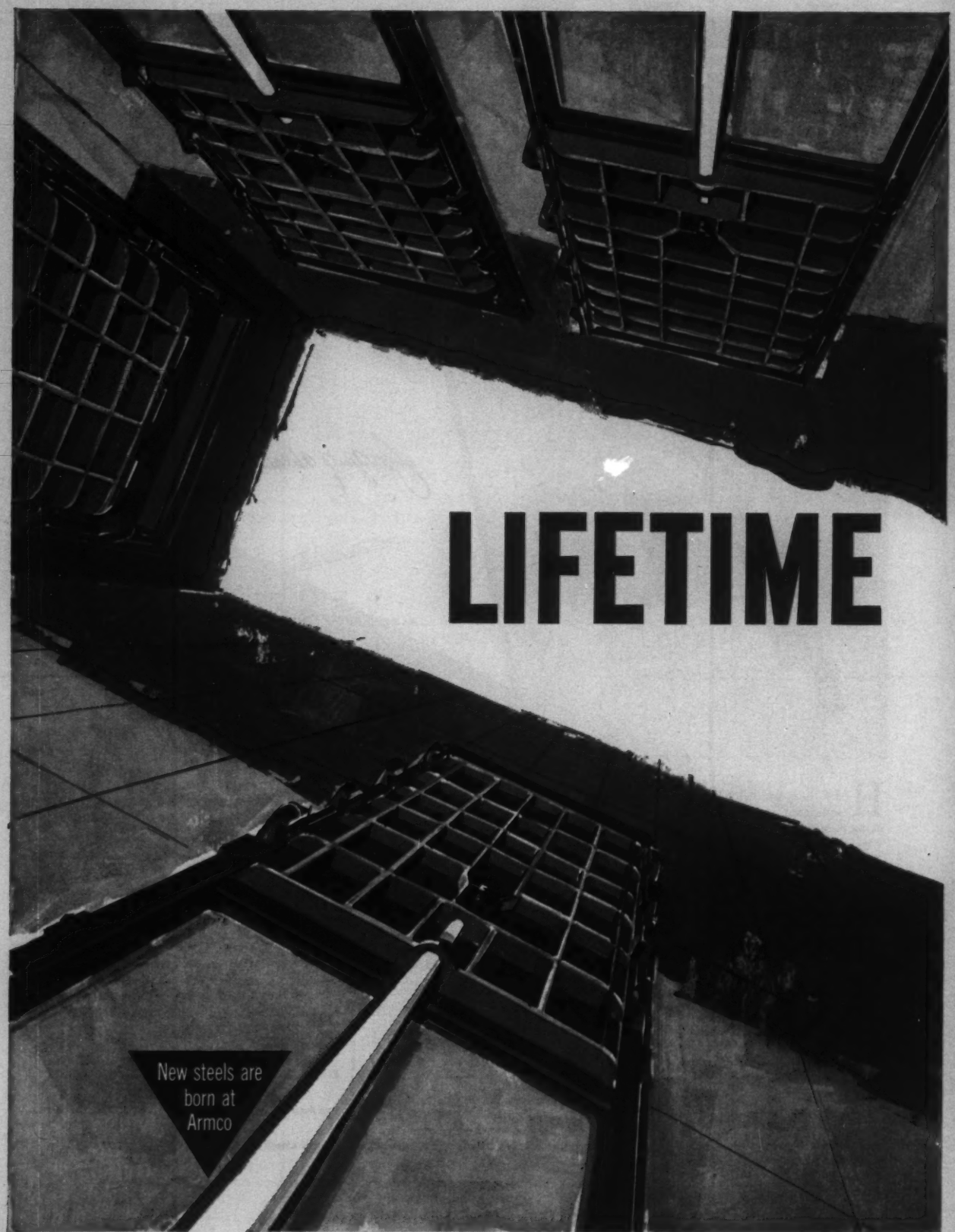
Name.....

Firm Name.....

Business Address.....

Position.....

Home Address.....


LIFETIME
New steels are born at Armco

Now, to assure lifetime protection from corrosion, and at the same time provide high strength, high modulus of elasticity and economy, Armco Sluice Gates are being supplied with Armco Stainless Steel Gate Stems. Thus, you gain unmatched reliability of operation and durability. This is not an optional extra-cost item. STAINLESS STEMS ARE STANDARD WITH ARMCO GATES.

Armco offers you the most complete selection of gates in the world, including sluice gates, flap gates, roller and radial gates, light duty slide and turnout gates and meter gates. There's a type and size to meet your specific needs.

NEW CATALOG JUST PRINTED

Important revisions have been made in the Armco Gate Catalog, providing complete data on the new stainless steel gate stems, bronze seating faces, specifications and installation data. Send coupon for your copy now. Armco Drainage & Metal Products, Inc., 7330 Curtis Street, Middletown, Ohio.

STAINLESS STEEL STEMS ... another extra quality feature FOR YOU in Armco Gates

Send my copy of the new, revised Armco Gate Catalog.

☐ Have Armco Sales Engineer in my area make an appointment to discuss Armco Gates.

NAME_____ TITLE_____

FIRM_____

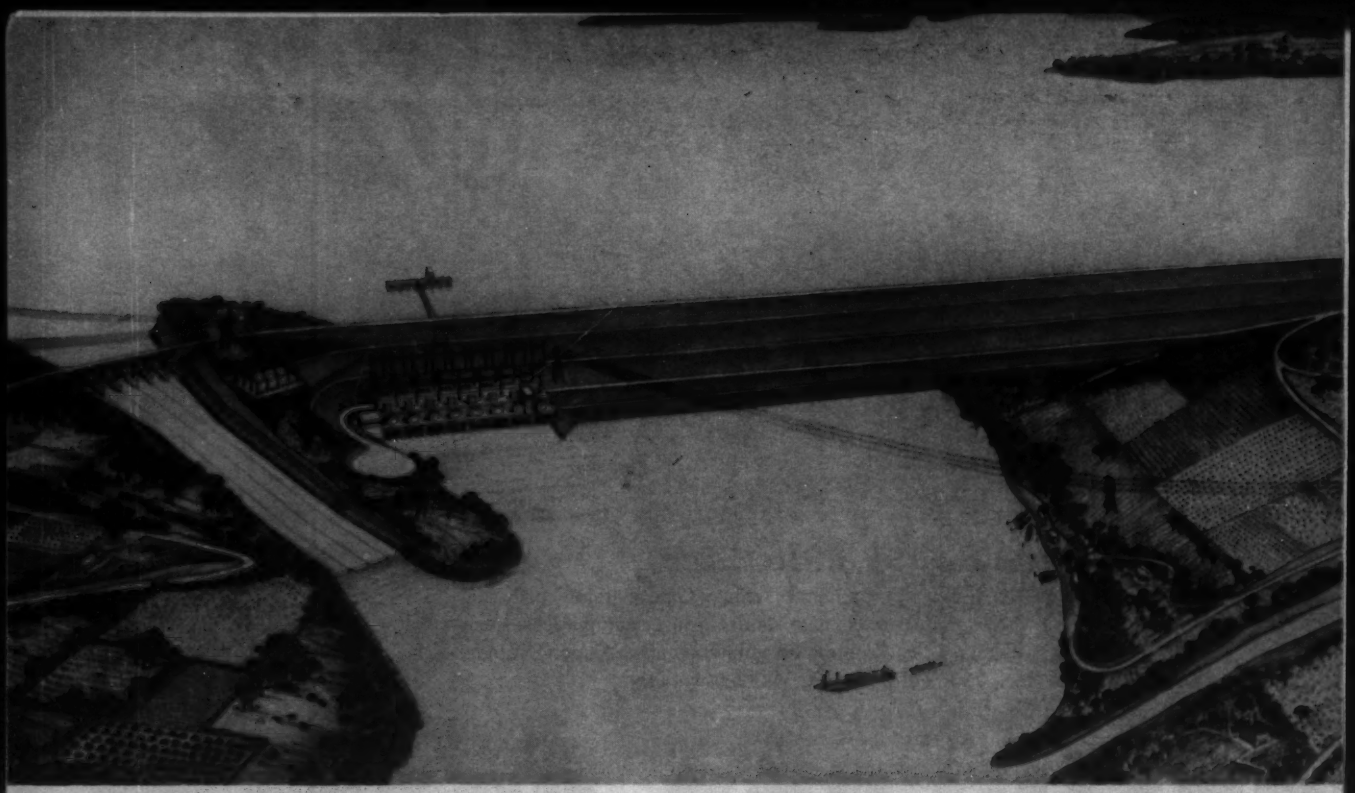
STREET_____

CITY_____ ZONE_____ STATE_____

ARMCO DRAINAGE & METAL PRODUCTS

Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division
The National Supply Company • The Armco International Corporation
Union Wire Rope Corporation



South America's biggest earthfill dam will back up an artificial lake half the size of Lake Mead

Brazil's Tres Marias Project

By A. N. Rydland

Tres Marias Dam—Latin America's biggest earthfill dam and one of the hemisphere's top hydroelectric and water storage projects—is well along toward completion on Brazil's Rio Sao Francisco.

The dam will contain nearly 19 million cu yd of fill, which puts it among the world's biggest half-dozen embankments. And it will back up a reservoir of 15.5 million acre-ft capacity, roughly half the maximum volume of Hoover Dam's Lake Mead. Installed generating capacity will total 520,000 kw ultimately, and the project will also firm up the capacity of an existing downstream power plant by 400,000 kw.

• **Need for the job**—The project is located in the state of Minas Gerais, about 155 miles northwest of the state capital, Belo Horizonte. The region's expanding metallurgical and proposed electrochemical industries are expected to use all the power available from the new project. Power consumption in the state doubled from one to two-billion kwh a year in the five years from 1953 to 1958. It is expected to reach six billion kwh a year by 1963.

Half the ultimate power capacity will be installed initially—four 65,000-kw units. The project will also provide flood control and flow regulation for downstream navigation. Active storage for navigation and power releases will total 12.8 million acre-ft.

• **Dam design**—Although the typical cross section (see drawing) shows three zones of fill, the dam is essentially of the homogeneous type.

Zone 1 consists of type CL material (Airfield Classification System) with a liquid limit generally greater than 40% and located above the A-Line in the plasticity chart. It is being compacted at about optimum water content (standard Proctor) or slightly above for greater impermeability and plasticity.

Zone 2 contains generally the same type of material as Zone 1, but less carefully selected. It is compacted at a water content on the dry side of optimum to minimize pore pressures and their detrimental effects on embankment stability during construction. Some ML material is included in this zone but it is avoided toward the upstream face of the dam where the fill needs to be more plastic and less erodible.

Zone 3, the downstream part, consists of random materials including both ML and CL types. The decomposed siltstone from structure excavations is used in this zone as far as practicable. Compaction is on the dry side of optimum moisture content.

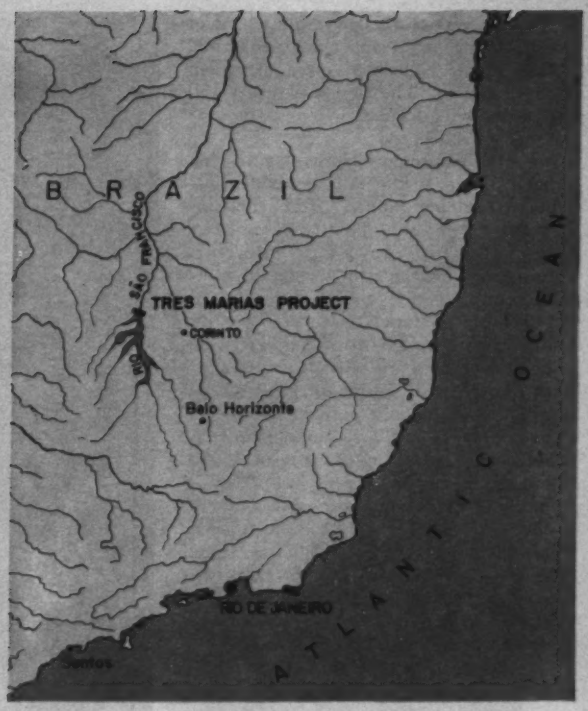
The internal drainage system consists of a vertical sand drain a short distance downstream from the dam axis, a horizontal drainage layer extending to the downstream face, and another vertical sand drain connecting the horizontal layer to the river bottom. From the river bottom, drain wells 6 in. in diameter and 26 ft deep extend into the rock from the lower vertical drain to relieve seepage pressures.

Even more important than assuring a lower seepage line through the dam, the vertical sand drain has a second purpose: To provide a healing effect on any cracks due to differential settlements, which may tend to develop through the entire section of the dam.

• **Why earthfill?**—A study of the materials available dictated selection of an

A. N. Rydland is vice president of International Engineering Co., in charge of the Tres Marias Project and all other IEC operations in Brazil, including the 1.1-million-kw Furnas hydroelectric development. His 30 years of hydroelectric and highway experience also includes design supervision for the Kemano underground power plant in British Columbia.

for power and navigation.



Site is in an area of expanding industry.

Puts Rio Sao Francisco to Work

earthfill design. Scarcity of fine aggregates promised in early field investigations to become critical in a concrete dam.

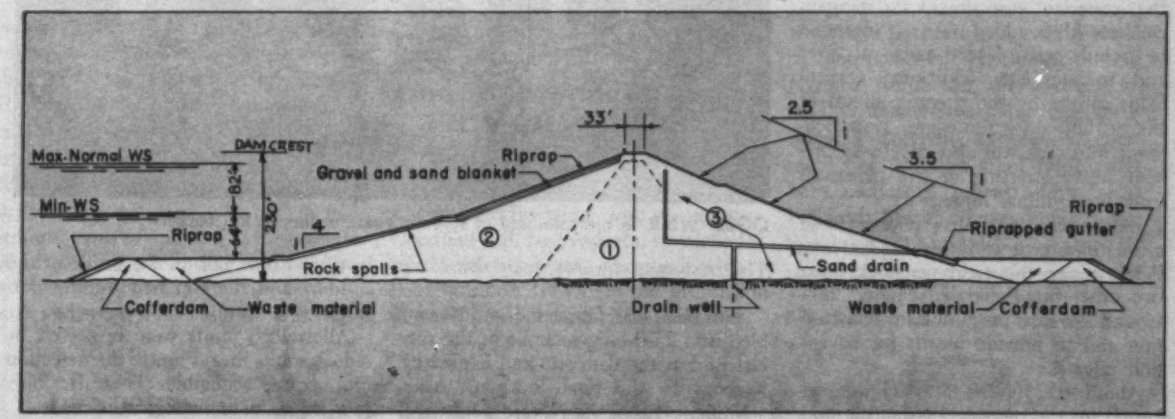
On the other hand, suitable embankment materials were found to be in plentiful supply.

Brick-red lateritic clay is abundant within reasonable hauling distance of the site. The soil consists generally of an upper stratum of red clay of the CL type underlain by less desirable silty clays of the CL-ML type. Both types can be used in an earthfill dam.

Natural sands in the vicinity are fine-grained and very poorly graded, and the local rock is not suitable for good fine aggregates. Silty grain structure and mica-coated cleavage planes produce a sand of flaky particle shape, low strength and high percentages of fines.

However, the local fine-grained sandstones are sufficiently well-cemented and durable to produce coarse concrete aggregates and riprap for slope protection. And for an embankment containing large masses of compacted clay with resulting low hydraulic gradients, the local river sand is considered acceptable drain material.

• **Foundations**—The river at the Tres Marias site flows on sound bedrock, but the rock on the right abutment is less desirable. Inspection of the surface exposed by excavation of a deep spillway conduit along the right abutment showed differential weathering and fissuring much more extensive than borings had indicated. Extensive treatment was needed to prevent seepage that could endanger downstream slope



Dam cross-section is zoned but the embankment is actually the homogeneous type.

stability next to the powerhouse. After considering upstream clay blanketing, the engineers decided on a clay-filled cutoff trench. The trench is nearly 150 ft deep at its deepest.

• **Earth placement**—Embankment has been placed at the rate of about 450,000 cu yd per month. Both elevating scrapers and shovels are being used for loading in the borrow pits. Bottom-dump trucks haul the material to the dam site.

Zone 1 material is placed in 10-in. lifts (loose) and compacted by 12 passes of a sheepsfoot roller with a foot pressure of 315 psi. Other zones are placed in 14- to 16-in. lifts and are compacted by four passes of a 50-ton rubber-tired roller with a bearing pressure of 85 psi.

During the dry season, water has to be added both in the pits and on the fill. Average compaction is 98% of standard Proctor. Material found with less than 95% Proctor density is compacted by three additional passes of the sheepsfoot roller or two more passes of the rubber-tired roller.

• **Multipurpose penstocks**—The project's eight 21.6-ft-dia penstocks run from the intake structure at the right abutment through the dam to the powerhouse. They are encased in reinforced concrete and are founded on good quality rock. Many comparative studies, including pipes through a concrete dam and tunnels, proved the chosen arrangement to be the most economical.

Some engineers frown on this type of layout, especially where the conduits are big and the fills are deep. However, after studies of fill settlement and the foundation, the scheme was judged entirely safe and consistent with good engineering practice.

To minimize the usual loading assumptions used for structures under high fills, the conduits were entrenched almost entirely into solid bedrock. Where the rock dips below the top of the concrete embedment, a ramped concrete fill is added. This is intended to exclude active lateral earth pressures and to eliminate additional vertical loads caused by the draping effects of the earthfill along the edges. Entrenchment into rock will also effectively prevent heavy stressing of the penstocks from longitudinal forces.

Before being put into service for their ultimate purpose of furnishing water to the turbines, the eight penstocks have two other functions: To channel flow around the final stage of dam construction and to provide means for navigation releases.

About 10,250 tons of steel were required for the penstocks. Slightly more than one-fourth of it was imported. The rest was furnished by Brazilian mills.

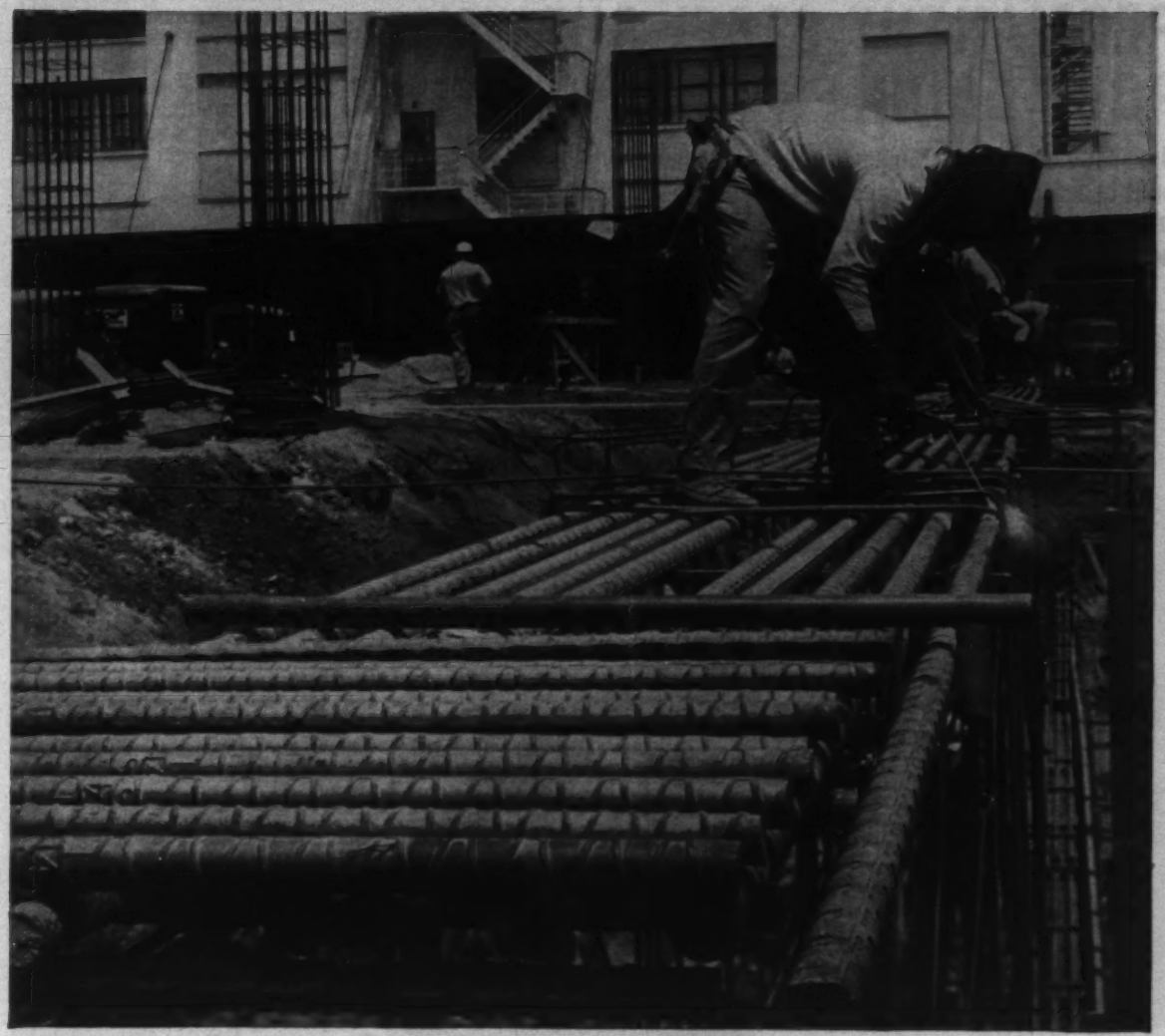
The steel was fabricated and assembled into 25-ft-long sections in the special yard at the dam site and hauled by lowboys to the final location. After alignment, the sections were welded together in the downhand position, that is, the bottom half on the inside of the conduit and the top half on the outside.

All welded joints were inspected by radiographic means until the rejection rate became negligible. Thereafter only spot checks of the welds were made.

(*Continued on p. 46*)

CUTOFF TRENCH *in right abutment is 150 ft deep in some spots.*

OGEE WEIR *is upstream end of spillway chute ending in flip bucket.*



The new Sears, Roebuck and Co. mail order building was designed and engineered by Bowen and Bowen, Inc., of Los Angeles. General Contractor: Hilp and Rhodes, San Francisco. Bar fabricator: Meehleis Steel Co. of Los Angeles.

Footings for $3 million Sears, Roebuck building require 1,800 tons of new-billet steel

Some 1,800 tons of Bethlehem new-billet steel reinforcing bars were used in the huge footings for Sears, Roebuck and Co's new Los Angeles mail order building. The 4 ft 6 in. by 10 ft beams contain bars ranging from No. 6 (¾ in. round equivalent) up to the king-sized No. 18S (2 in. square equivalent). They extend 361 ft on the north and south sides of the building, 178 ft 6 in. on the east and west. The building will rise seven stories, with provision made for an additional three.

BETHLEHEM REINFORCING BARS HAVE A KNOWN HISTORY

When bundles of Bethlehem reinforcing bars arrive at a job site, you know exactly what you're using. Certified mill test reports, furnished by Bethlehem, are matched with heat numbers by which the bundles of bars are identified. The customer who buys Bethlehem bars is assured of composition, mechanical, and physical properties fully meeting all ASTM Billet-Steel Bar Specifications. Bethlehem supplies a complete line of billet steel reinforcing bars, including the extra-large sizes 14S and 18S, in all standard grades. Special grades are also available.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

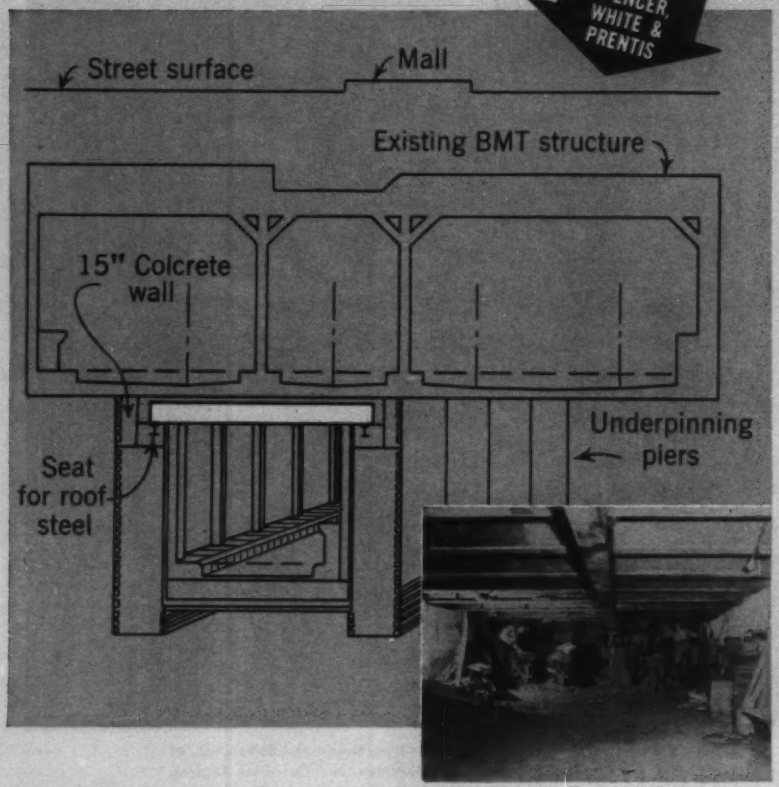
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

PERMANENT STEEL SUBWAY ROOF DOUBLES AS SHORING

Unusual underpinning supports operating subway while new track is built beneath. Plan entails no interior shoring of existing subway, no track-shifting or changes in electric system or signals, permitting normal service during construction.

ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS



Project: Chrystie Street Subway, Section 2, Route 112, for New York City Transit Authority
General Contractor: Cayuga Construction Corp., New York City

With headroom of 5 in. or less between the top of the new steel and the bottom of the operating subway, the use of temporary needle beams as a shoring method on this job posed a problem.

Solution: this unusual plan. The new line's permanent steel roof beams (increased in size and length) were incorporated into the underpinning system, carrying the load temporarily to the retaining walls and later to the completed new foundation.

Write for literature describing this procedure, the Colcrete wall construction, the use of Pretest cylinders to underpin the old subway columns, and other interesting features.

Spencer, White & Prentis INC.

FOUNDATIONS · PILING · UNDERPINNING · SHORING · COFFERDAMS · SPECIAL SERVICES

10 EAST 40th STREET, NEW YORK 16, N. Y.

DETROIT: 2033 PARK AVE. · CHICAGO: 221 NORTH LaSALLE ST. · WASHINGTON, D. C.: TOWER BLDG.

(Continued from p. 44)

• **Spillway and powerhouse**—The spillway is on the right abutment. Releases will pass over a concrete ogee weir controlled by tainter gates, approximately on the dam axis extended, and then down the concrete-lined chute to the river channel well below the dam where the chute terminates with a flip bucket.

The semi-outdoor type powerhouse is located at the dam's downstream toe. The 65,000-kw generators will be direct-connected to Kaplan turbines rated at 90,000 hp at 164 ft head.

Initial stage construction provides for the installation of four power units and two 102-in. hollow-jet type discharge valves for regulation of reservoir releases. The first two generating units are expected to go on line next June.

• **Who does what**—The Tres Marias project is a joint undertaking of Comissao do Vale do Sao Francisco (CVSF), a federal regional agency, and Centrais Eletricas do Minas Gerais (CEMIG), a state-controlled public utility company. CVSF is financing the dam, spillway and outlet works at an estimated cost of about $47 million. CEMIG is financing the power and transmission facilities at a cost of about $33 million.

Layout and basic designs were prepared by International Engineering Co., San Francisco, Calif.; construction drawings by Compania Internaciona. de Engenharia e Construcoes, Rio de Janeiro; final power plant design and construction drawings by CEMIG's engineering staff in Belo Horizonte in consultation with Servix Engenharia Ltd., Rio de Janeiro. CEMIG is supervising field quality control. Arthur Casagrande, of Harvard University, is general consultant for the project.

Construction is by Compania Constructora Corinto, a joint venture sponsored by Compania Morrison-Knudsen do Brasil. M-K's associates in the job are Utah Construction Co., Henry J. Kaiser Co. and Raymond International Co.

Project's Details

Dam ht above river bed	230 ft
Crest length	8,850 ft
Volume	19 million cu yd
Spillway width	302 ft
Number of tainter gates	7
Gate size	36 x 46 ft
Discharge at 15-ft head	310,000 cfs
Reservoir capacity (max normal)	15 million acre-ft
Active storage	12.7 million acre-ft
Area (max normal)	254,500 acre
Power plant type	Semi-outdoor
Turbines	Kaplan, 90,000 hp
Generators	68,000 kva, 0.95 p.f.
Cranes	Two 143-ton gantries

The Surveyor's Notebook

Reporting on Unusual Surveying Problems and Their Solutions

Notekeeper: W. & L. E. Gurley, America's Oldest Engineering Instrument Maker

Optical Plummet solves problem on Niagara Power Project

"Sometimes a seemingly little thing can make a big job easy," says Frank Dickey, Project Engineer on the Niagara Power Project for Channel Constructors—a joint venture of Peter Kiewit Sons' Co., Morrison-Knudsen Co., Perini Corp., and Walsh Construction Co.

"We had an unusual problem here on excavations for the 500-foot-wide channel which will handle the water for the new Niagara hydroelectric plant. The conduits will pick up water from the Niagara River a couple of miles above the Falls and carry it underground through the city to an open channel, reservoir and 2,190,000-kilowatt power plant located several miles down the river.

"The channel had to be cut from dolomite. We decided to line drill the full 105-foot depth at one time, using 6-inch diameter holes on 5-foot centers. It was our intent to line drill the entire job, some 1600 holes, before any of the excavation was finished to grade. This made it necessary to devise a method of checking the holes for plumb from the surface so as to be sure that they did not deviate enough to get outside the tolerance allowed by the specifications.

"We thought of several ways to do this but none very practical, until one of the men mentioned having used a Gurley Optical Plummet Transit on another kind of job up in Canada. We decided to try the 'bobless transit' here.

"We set up over the opening; then leveled the instrument with the North plate bubble over two opposing leveling screws. Then we sighted in the Optical Plummet and started moving the other two opposing leveling screws until we were able to pick up the light—by means of the 'OP'—from a dime store flashlight which had been lowered into the hole by a string.

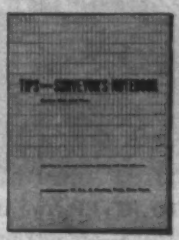
Frank Dickey (r.) checks Gurley Optical Plummet Transit on Niagara Power Project job.

"While moving the two opposite screws, we constantly checked the North plate vial to make sure that it remained level throughout the movement. After we picked up the light from down the hole, we moved the telescope until its bubble was in the center. When this was established, we read the vertical circle—this giving us the angle at which the hole had been drilled.

"**This proved to be accurate** and a fast system for checking the holes and undoubtedly gave us a better job than we could have otherwise obtained.

"This use of the 'OP' is a special case," Mr. Dickey added. "But I'll bet there will be many other jobs that the 'OP' can lick. For years I cussed the plumb bob, especially when the wind was blowing...always wished someone would do something about it."

You, too, can do something about the plumb bob problem. Gurley *built-in* optical plummets eliminate outmoded bobs...save set-up time... improve accuracy. *Bulletin OP-100 gives complete details on two models available.*



"Tips from The Surveyor's Notebook": *We have collected the most helpful, most discussed pages from Series One and Two of "The Surveyor's Notebook" in one 20-page book. These valuable field suggestions will help you use your own instruments with greater success. Write for your free copy.*

GURLEY

Surveying and Scientific Instrument Makers
Since 1845

W. & L. E. GURLEY, UNION PLAZA, TROY, N. Y.

Engineering and Surveying Instruments, Hydrological and Meteorological Instruments, Paper Testing Instruments, Optical Instruments, Reticle Manufacturing Facilities, Standard Weights and Measures

Field Performance Report

Users confirm that DOUBLE GRAY-X® Wire Rope lasts longer on tough jobs

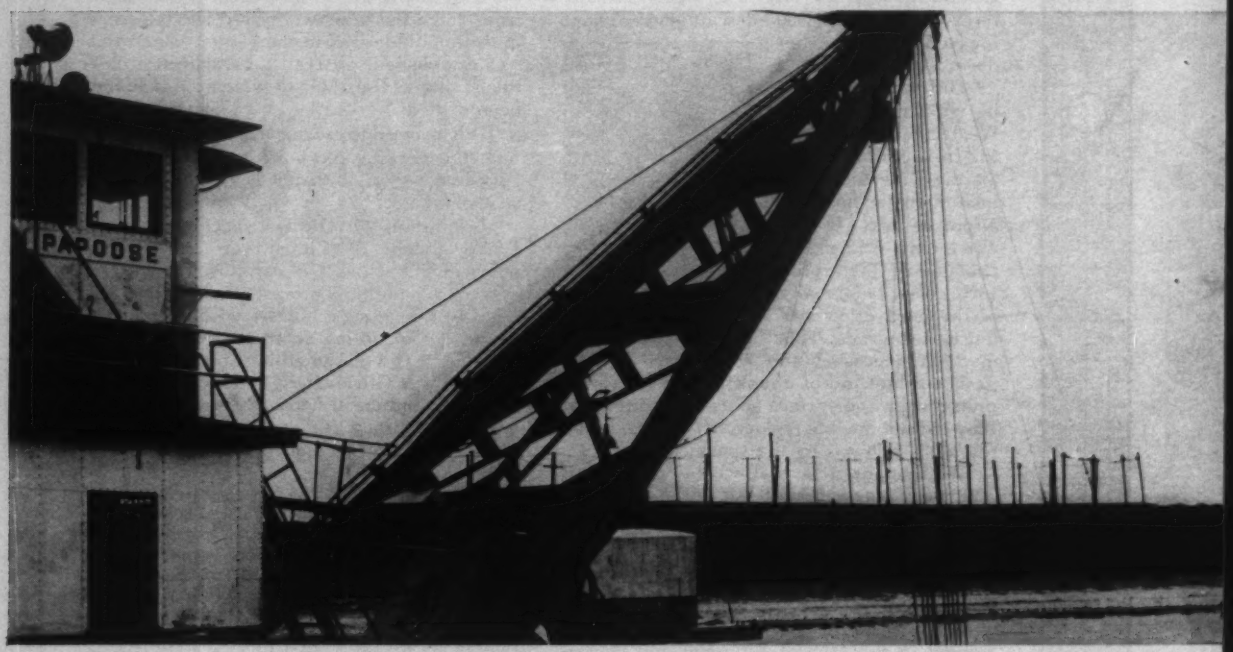
Field reports are now coming through on CF&I-Wickwire's superior new wire rope—Double Gray-X. These reports, a few of which are summarized here, all agree on one point — when the going really gets tough, Double Gray-X lasts longer than other wire ropes.

Double Gray-X is the result of CF&I's intensive research program leading to the discovery of a remarkable new wire-drawing technique. This process includes the use of Molysulfide* in the lubricant, which creates a *permanent molecular shield* around the individual wires, resulting in these benefits:

- **reduced friction between individual wires in every strand of Double Gray-X during service;**
- **smoother wire surface, which helps eliminate the "weak links" that can cause breakage and impair service life;**
- **greater resistance to abrasion, crushing, bending.**

And—in addition to longer life—Double Gray-X gives you extra strength. Made of extra-improved plow steel with an independent wire rope core, this rope gives 15% higher breaking strength than the catalog breaking strength of an improved plow steel rope with IWRC.

Double Gray-X is made in a wide range of sizes and constructions. It's available from CF&I-Wickwire's chain of warehouses and nation-wide network of distributors. For complete details, call the nearest CF&I sales office or a Wickwire Rope distributor.

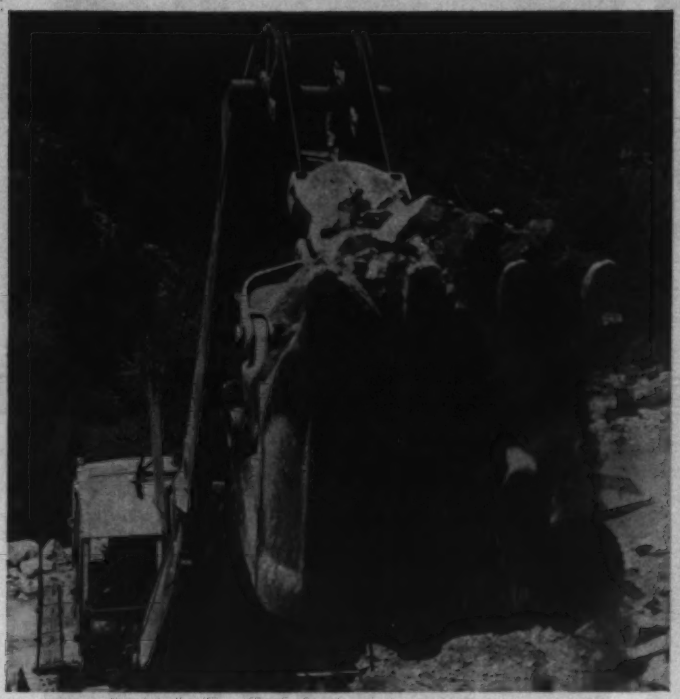


REPORT: ON THE SACRAMENTO RIVER, two dredges – the *Papoose* and the *San Diego*—are sucking up tons of silt to help make Sacramento a seaport. Both use Double Gray-X for lines on swings, spuds and ladders.

Captain Nick Carlson of the *Papoose* (Hydraulic Dredge Company) says: "The Double Gray-X rope that holds the suction head really takes a beating on both spud and swing lines, but it's still in fine shape. However, another brand of wire rope put in at the same time is beginning to show wear."

Captain Ralph Vea of the *San Diego* (Pacific Dredging Company) reports: "When you're down with rope failure in this business, you're really out of production. But Wickwire Rope, which we have been using for nineteen months, really keeps us going. We used to change swing lines every six weeks, but the Double Gray-X we have on there now has been in service nine weeks already. That new protective shield on the rope really does the job."

*Registered Trademark of Climax Molybdenum Co.



REPORT:

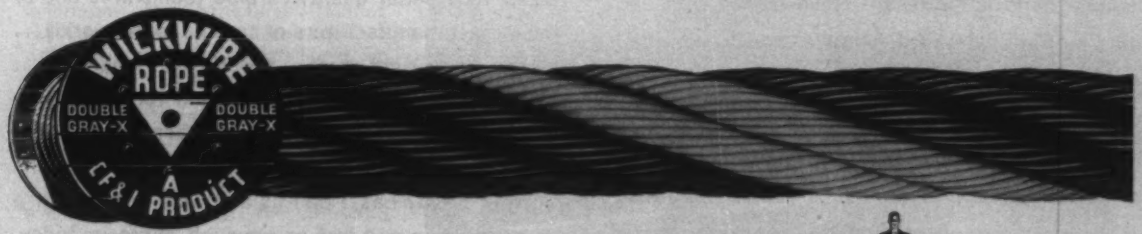
IN THE MOUNTAINS OF COLORADO, the Hopkins Construction Company relied heavily on Double Gray-X on "two of the toughest construction jobs we ever handled." Both required the moving of more than 300,000 cubic yards of material. Many different types of earth-moving equipment, including the power shovel pictured above, were equipped with Double Gray-X — with these results:

President Hopkins: "Every minute of working time counted on the Cheyenne Mountain job because we faced a $5,000-a-day penalty if we didn't finish it in 45 days. The service we got from Double Gray-X was wonderful. We didn't lose 1% of downtime because of rope failure — and we completed the job in exactly 45 days."

Duane Rundle, Project Superintendent on the South St. Vrain Canyon job: "Rope life has been improved and downtime cut drastically since we switched to Double Gray-X. Maintenance is no problem at all. We just grease the rope when needed."

REPORT:

ON ROTARY OIL RIGS of the Falcon Seaboard Drilling Company, a prototype of Double Gray-X underwent tests that put wire rope to the most extreme abuse. Mr. Jack Starr, Vice President in Charge of Drilling, comments: "The results obtained with the original prototype of Double Gray-X led to our decision to order a carload of this improved product. Falcon Seaboard insists on the best products to serve the oil industry in accordance with today's modern standards."



WICKWIRE ROPE

THE COLORADO FUEL AND IRON CORPORATION

CF&I STEEL

In the West: **THE COLORADO FUEL AND IRON CORPORATION** — Albuquerque • Amarillo • Billings • Boise • Butte Denver • El Paso • Farmington (N. M.) • Ft. Worth • Houston • Kansas City • Lincoln • Los Angeles • Oakland Odessa (Tex.) • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Francisco • San Leandro Seattle • Spokane • Tulsa • Wichita

In the East: **WICKWIRE SPENCER STEEL DIVISION** — Boston • Buffalo • Chattanooga • Chicago • Detroit Emlenton (Pa.) • New Orleans • New York • Philadelphia

7750

Specify SANDVIK COROMANT ROPE-THREAD bits and steels

...for quick hand uncoupling!

No, it's not child's play, but the fact is you can uncouple Sandvik Coromant Rope-Thread bits and steels by hand! Smooth, shallow-depth, rounded threads with a pitch of just 2 turns per inch prevent binding. You'll have fewer thread failures too, compared with "saw-tooth" thread designs. What's more, only the threads are hardened, so you can re-thread steel sections without heat-treating. And, with faster uncoupling, you'll drill more feet per shift!

Coromant bits and steels have many other advantages, too: Better quality carbide (Sandvik is one of the largest manufacturers of carbide in the world)... better, more rigid steel... superior workmanship... all add up to above-average bit and rod life, up to double the footage between sharpenings, and straighter, cleaner holes.

Want proof? Easy! Call us and we'll arrange for a demonstration and test on your job. Write us today. Address: Dept. ENR-11.

Atlas Copco

545 Fifth Avenue, New York 17, N. Y.

610 Industrial Avenue
Paramus, New Jersey
COlfax 1-6800

930 Brittan Avenue
San Carlos, California
LYtell 1-0375

Floor ribs were cast with concave surfaces.

Plywood "boats" form folded-plate ribs.

Garage Ramps Cast in Lift Slabs

Lift slabs for a seven-story parking garage, cast with built-in ramps, mark the first time that warped slabs have been hydraulically lifted. The $1-million project, owned by Prudential Insurance Co. of America, also marks the first use of the lift-slab technique in Newark, N. J.

Each floor covers an area about 170x 190 ft, divided into three lift-slab units. The floors are sloped and warped for one-way traffic throughout.

The four column lines, spaced from 15 to 17 ft along the building's length, determine the structural framing. Folded plate ribs, 30 in. deep and 30 in. wide at their soffits, span 56 ft between columns. The concrete slabs, 6 in. thick, span up to 10 ft clear between the ribs.

Building the plywood formwork for the ribs, or "boats," as the carpenters called them, was a job worthy of shipwrights. Not only do the rib soffits curve upward at the columns, but the rib sides converge into the columns. In addition, the slab thickens in a curved haunch to provide more concrete for shear strength at the supports.

The general contractor, Frank Briscoe Co. of Newark, cast the lift slabs at the third floor level, above two floors of cast-in-place construction. Lightweight mix went into the slabs; ordinary concrete with pea-sized aggregate

Twenty-two jacks lift first 270-ton unit for center-bay roof.

Satisfied Public Works Officials

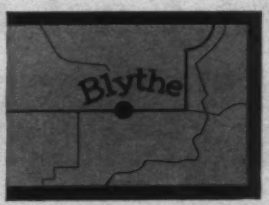
comment on their Ellicott Dredges

Dayton, Ohio

Mr. W. T. Eiffert, Director, Department of Water writes, "We have never received such a complete piece of equipment, nor have we ever received such complete training in the operation of a new piece of equipment."

Blythe, California

Mr. O. E. Simmons, Manager, Palo Verde Irrigation District says, "All checks indicate that the dredge is exceeding the specified capacity. Our operators frequently comment on the simplicity of operation and the small amount of effort required to handle the control system."



Yaphank, New York

Mr. Albert Cass, Commissioner of Public Works, Suffolk County reports, "The versatility of our Ellicott 12" hydraulic pipeline dredge 'Shinnecock' has made possible a wide variety of local development projects."

Customer statements from all parts of the country and the world testify to the excellent design, quality and performance of Ellicott dredges and the service that accompanies them. These remarks concerning both standardized "DRAGON" models and the heavy duty dredges have come from both public officials and private owners.

If you are considering the purchase of a dredge, we will be glad to tell you more about what other owners of Ellicott dredges say, and provide technical details. Write to Ellicott Machine Corporation, 1603 Bush Street, Baltimore 30, Maryland. 2455

Marking Our 75th Year

ELLICOTT DREDGES

ELLICOTT MACHINE CORPORATION, Baltimore 30, Maryland, U.S.A.; Ellicott-Brandt, Inc., Baltimore, Maryland; Ellicott Fabricators, Inc., Baltimore, Md.; McConway & Torley Corp., Pittsburgh, Pa.; Timberland-Ellicott, Limited, Woodstock, Ontario, Canada; Dragues Ellicott France, Paris, France; Dragas Ellicott do Brasil Ltda., Rio de Janeiro, Brazil; Ellicott de Mexico, Mexico City, Mexico.

Successors to the floating dredge business of the Bucyrus-Erie Company and the American Steel Dredge Co. Complete engineering, design and construction service.

(max. ¾ in.) went into the ribs. Tight bar clearances in the 4½-in.-thick sloping sides of the ribs precluded the use of large coarse aggregates in the ribs.

To form the soffit surface of each successive slab, the contractor had to form the concave surface of the ribs in all floor slabs. These troughs in the floor slabs will be filled with lightweight concrete placed around void-forming cardboard tubes after the slabs are in final position. The expense of this additional forming and concreting work was saved in the roof slabs. They were cast monolithically.

Before casting each successive slab on top of the one below, the contractor painted the surface with a coat of curing compound followed by two additional coats to prevent bonding between the stacked slabs.

Lifting jacks, mounted atop the steel columns, moved the 270-ton lift-slab units into position. Two "organists", each operating a console that controlled 11 jacks, rode up with the lifted slabs. They controlled the elevation of the slabs to within 0.1 in. during the lifting operation, raising the slabs at the exact cant at which they were cast. As in all lift-slab work, careful control was required to limit erection stresses.

For lateral stability the engineers specified erection of the center bay to precede the south and north bays. First the seventh (roof) level went up; then the sixth level, followed by the fourth and fifth together. The fourth level was "dropped off" at its proper elevation as the fifth continued upward. The north bay, where each sloped warped panel was common to two levels, had only three lift-slab units.

Slab-column connections consist of specially cast shearheads field-welded to the wide-flange columns and to bearing plates set in the concrete ribs. The steel columns will be fireproofed with concrete.

The lift-slab units will be joined with 2-in.-wide strips, cast in place at the interior column lines. At east and west walls, where spandrel beams had to be cleared during lifting, cast-in-place strips will be several feet wide.

The structure will have open-air ventilation from the second floor up. Vertical aluminum tubes, 5 in. wide and 12 in. c-c, will form an open-type curtain wall.

Prudential will lease the garage to Edison-Plane Co. of Newark. It should be finished and in operation late this year, furnishing driver-parking for 500 cars.

Architects for the project are Voorhees Walker Smith, Smith & Haines; structural engineers and parking consultants, Gage & Martinson. Lift Slab Corp. of New York was subcontractor for raising the slabs. All are from New York City.

CONCRETE SHORING
Pittsburgh, Pa.

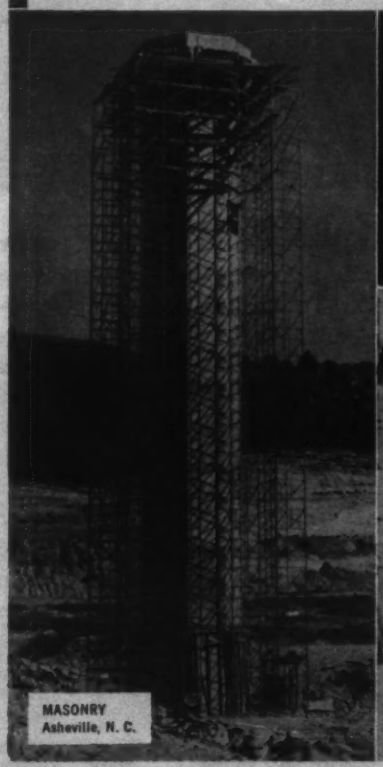
HOISTING EQUIP.
Charlotte, N. C.

CONSTRUCTION PROFITS ON THE RISE

These examples of BEAVER-ADVANCE products at work are photographic patterns of construction progress and profits in the making.

Let the skill and knowledge of the BEAVER-ADVANCE team go to work for you. They're experts on the profitable application of tubular scaffold and hoisting equipment for all types of building construction.

MASONRY
Phila., Pa.

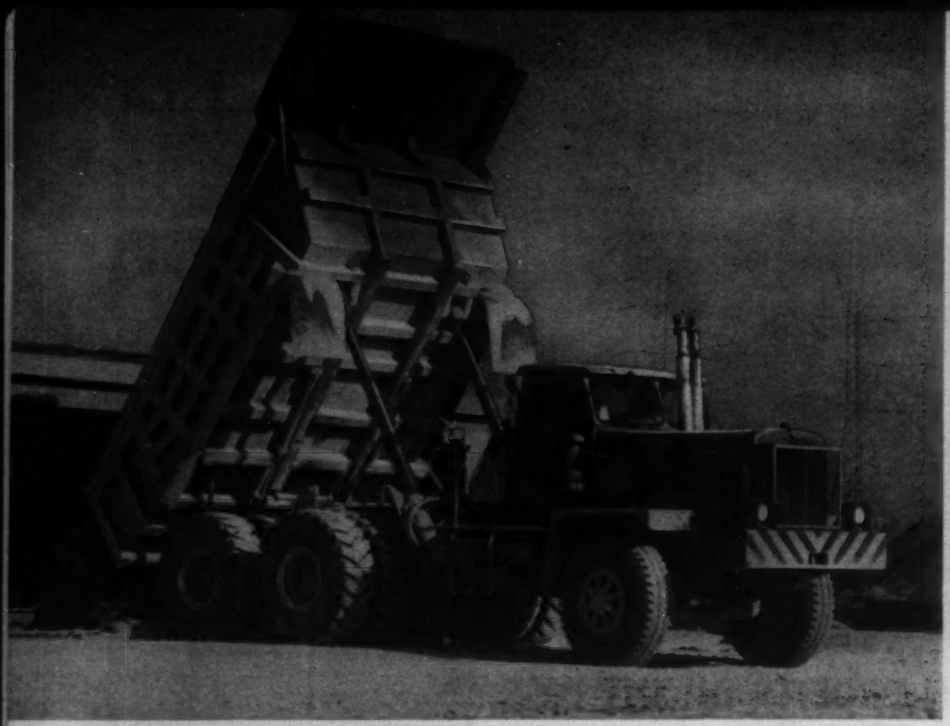

MASONRY
Asheville, N. C.

Beaver-Advance
CORPORATION
Ellwood City, Pennsylvania

BEAVER ADVANCE

Sign of Quality, Value and Service

CONCRETE SHORING
Great Lakes, Ill.



Maneuverability for quick spotting at crusher and under shovel is essential to maintain fast cycle time. Drivers say these big units handle almost as easily as their own cars—particularly like positive brake control on loaded downhill runs.

Talk about efficiency

...four replace nine

Big tonnage operations like those of Consumers Company, McCook, Ill., division of Vulcan Materials, Inc., depend on modern, efficient equipment to keep operating costs low. In the quarry, fast-action electric shovels pick up 5½-yard bites of shot rock. Four Mack LYSW end-dumpers, working two to a shovel, hustle forty-ton loads three-quarters of a mile to the crusher . . . a total of 288 trips each day. Before Vulcan put the four big Macks on the job, there were actually nine smaller competitive models working under the shovels.

Outstanding performance characteristics enable Macks to contribute to successful quarry and mining operations throughout the world. Plenty of power for fast getaways under full loads. Massive, self-equalizing, air-over-hydraulic brakes and easy, positive power steering for safe, fast maneuverability at shovel and crusher. Traditional Mack construction throughout to reduce downtime and maintenance.

These are sound reasons why Macks are first choice where profitable operations rely on truck performance . . . because they mean that when you purchase a Mack, you get a truck which will outwork and outlive anything in its class—that will pay for itself again and again by delivering top work capability per dollar invested. Your nearby Mack branch or distributor will be very glad to give you full details on the Mack best suited to your operation. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario.

MACK FIRST NAME FOR **TRUCKS**

Fast, modern electric shovels have to hustle when Mack 40-tonners like these gang up on them. For non-stop production, Vulcan assigns two Macks to each shovel. Exceptional speed and ease of handling are characteristics praised by drivers.

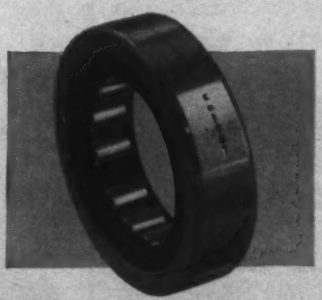
Big trucks are the profit makers in quarry operations. LYSW Macks like these easily handle 40-ton loads—hustle 72 trips a day from quarry to crusher—require only routine service and downtime.

PAYLOAD . . . tons at a gulp on Bower Roller Bearings

They call it strip mining . . . where payload is king and "don't spare the rig". Take this scraper: aided by a rugged 'dozer, it's pushloaded in mere minutes. Then, with tons of rock and earth on its back, it takes off cross-country . . . dumps the load . . . hustles back for more.

Bruising bouts like this often go on 24 hours a day, put an incredible strain on equipment *and on bearings*. Yet today's bearings—*particularly those by Bower*—more than meet the task. Their basic design advantages, coupled with fine materials and precision manufacturing, have earned them a reputation for long service under the most severe conditions. And with rarely a shutdown for maintenance.

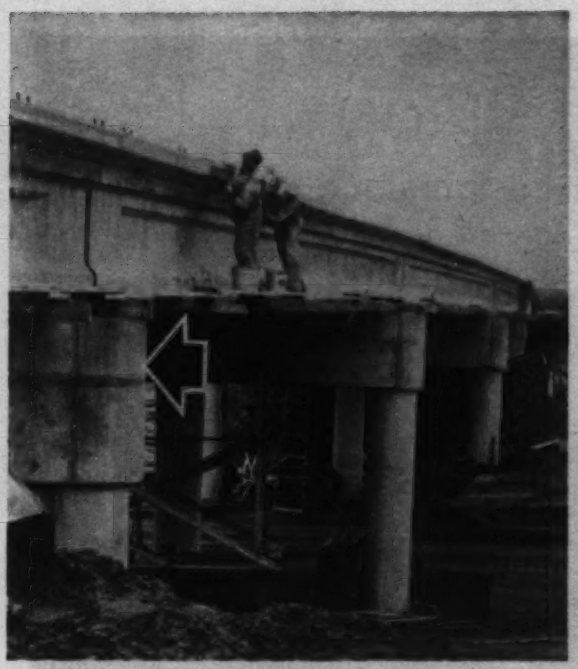
If you produce a product that uses bearings, specify Bower. You will find this extra measure of service in the full Bower line of tapered, cylindrical and journal roller bearings for every field of transportation and industry. Bower Roller Bearing Division, Detroit 14, Michigan.



BOWER
ROLLER BEARINGS

tapered
cylindrical
journal

DIVISION OF
FEDERAL-MOGUL-BOWER
BEARINGS, INC.



New concrete adds to pier height on one, and . . .

blocks increase clearance on another.

Bridges Raised to Clear Missiles

No single yardstick can be used to measure the cost of raising bridges over Interstate highways to meet the 16-ft clearance required by the Bureau of Public Roads for defense needs (ENR Feb. 4, p. 23).

The cost is dependent upon where construction stands when the decision to increase clearances is made.

If the bridge is still in the design stage, columns can be lengthened at relatively little additional cost. But if the substructure is completed, pier caps must be increased in height or bearing blocks added. If precast concrete or structural steel girders are in place they must be removed and reinstalled. Added cost can be quite high if the roadway deck has been placed. Another cost factor is the additional approach embankment due to the raise in grade.

When BPR issued its directive, Wisconsin faced the problem on three interstate routes: IH 94, Hudson-Eau Claire, 59 miles; IH 90, Janesville-Beloit, 16 miles; and IH 94, Milwaukee-Illinois State Line, 24 miles.

Because of the costs involved, it was decided not to raise at this time those structures on which the roadway deck had been completed.

Nineteen bridges were in various stages of construction on a 44-mile stretch of IH 90 and 94 between Madison and Wisconsin Dells.

Fortunately none of the 19 had received their roadway decks. No work had been started on two bridges. The substructure had been completed on three bridges. Roadway beams and girders were in place on six structures, while substructures of the other eight bridges were in various stages of construction.

The highway department, with the concurrence of BPR, decided to raise all 19 structures to provide 16-ft 6-in. clearance above the highway pavement —6 in. more than the required 16 ft.

This additional 6 in. clearance, according to E. L. Roettiger, state highway engineer, is to provide for future resurfacing of the pavements, plus an allowance for a small amount of frost heaving.

In general, the structures are raised about 2 ft, since the original required clearance in Wisconsin was 14 ft 6 in.

Total estimated cost of raising the 19 bridges is $172,700. Average cost is $9,000 per structure, including the cost of raising the approach embankments. Estimated cost of raising a single structure varies from a minimum of $3,300 to a maximum of $17,600.

Revised plans call for two methods of raising the bridges, which have cast-in-place reinforced concrete roadways on prestressed concrete or structural steel girders. In general they are four-span structures with one of the piers in the median strip.

For the concrete girders, pier caps are increased in height. Bond is provided between the existing pier cap and the added concrete by first coating the top of the original cap with an approved adhesive. Workmen weld U-shaped ¾-in.-dia stirrups to the existing anchor bolts. The stirrups extend up into the fresh concrete. New anchor bolts are set in the added concrete.

For structural steel girders, concrete blocks about 2 ft square (equal in height to the amount the bridge is to be raised) are cast in place on the original pier cap. The blocks are located beneath the steel girders and bonded to the cap by an adhesive and by stirrups welded to the original anchor bolts.

All 19 bridges will be raised to proper elevation before completion of the 44 miles of highway scheduled for late in the fall.

As of June 1 this year Wisconsin had completed and opened to traffic 100 miles of its 452-mile Interstate highway system. About 58 miles are under construction; 212 miles are in the detail design stage, route studies are under way on 83 miles. At that time, the State Highway Department had acquired 157 miles of Interstate highway right-of-way and was in the process of acquiring 30 more miles.

S. E. Hicks is engineer of construction and H. B. Schultz is bridge engineer for the highway department.

MANITOWOC 4500 VICON®

the only *really new* excavator design since steam!

MANITOWOC

The Manitowoc Model 4500 VICON represents the most outstanding advancement of excavator design in decades. Here is a 6 yard shovel or 7 yard dragline incorporating new, tested design principles to give you more yardage in less time than any other mechanical or electrically driven shovel-drag in this size range. Thoroughly proved on the job for over three years, VICON design has increased yardage 25% or better, substantially reduced maintenance costs, and piled up more profits for owners. Some exclusive VICON features are:

INTEGRATED CONTROLS that serve both as clutch operating levers and as engine throttles, providing variable speed control over each function. Clutches, being responsive to lower range of control pressures, are engaged before engines are accelerated. Slippage and overheated friction surfaces are eliminated, lengthening clutch life appreciably.

HOIST AND DRAG DRUMS ARE INTERLOCKED to automatically synchronize their operation. Cycle time is faster and output is greater because full horsepower is always available for hoist—the operator doesn't "soak" it up with the drag brakes. Operating costs are noticeably less because brake use is cut by 50% and lining wear is drastically reduced. Another advantage of the VICON interlocked drum arrangement is that the operator can "power lower" or free-cast the bucket.

DUAL INDEPENDENT ENGINE POWER with one engine powering the main drums, and the second all other functions. Here are all the advantages of electric or conventional diesel engine mechanical drive without the disadvantages of each. You get the performance characteristics of electric drive — smoother power flow, variable independent speed control, simultaneous operation of dig, hoist, swing, and propel functions—without sacrificing mobility, without incurring the headaches and special maintenance problems of electric drive, without needing a separate power source at every job site. You get the simplicity of mechanical drive without losing valuable production time because of engine "lug down", without needing to jam clutches into engagement at high and harmful engine speeds, without the limitations of operating speeds that are inherent in conventional diesel engine drive.

Why not get the complete story on the *sensational* Model 4500 VICON today? Your nearby Manitowoc distributor has all the facts.

8-A

Manitowoc

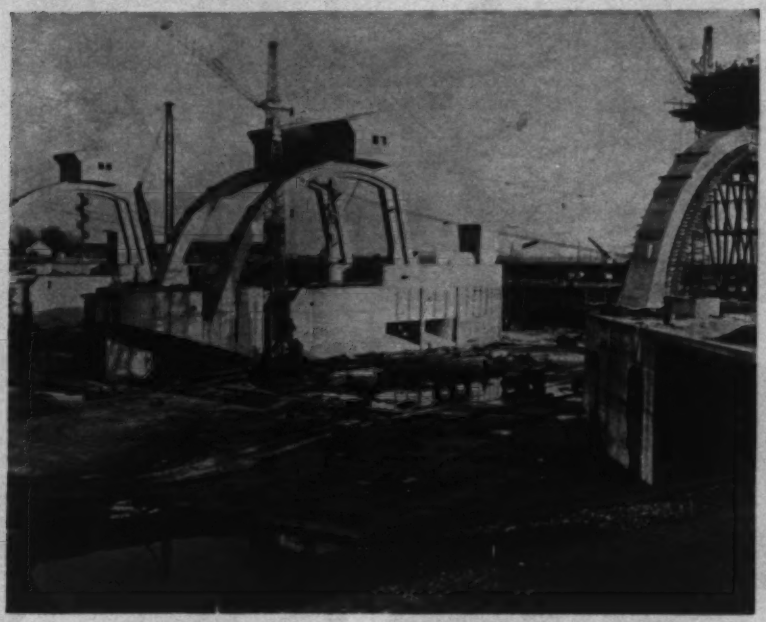
MANITOWOC ENGINEERING CORP.

(A subsidiary of The Manitowoc Company, Inc.)

Manitowoc, Wisconsin

SHOVELS	CRANES	DRAGLINES	TRENCH HOES
1¼ — 6 YDS.	25 — 125 TONS	1¼ — 7 YDS.	1¼ — 3 YDS.

Timing Counts on Rhine Projects



DAM AT DOORWERTH is ready for its 30 x 157-ft taintor gates, which will regulate navigation depths in river and divert part of flow northward into Zuidersee.

WATERWAY NETWORK in southern Holland which is being improved by three navigation dams on the Rhine and by closing off of North Sea estuaries by gated dikes.

Precise scheduling is the key to the Netherlands long range navigation and irrigation program on the Rhine River. The $36-million program was begun in 1954 and carefully timed for completion in 1968. Here are the objectives:

- Improve navigation on the Lower Rhine and the Lek (a continuation of the Rhine that flows past Rotterdam into the North Sea.)
- Divert more fresh water to the low lying farm lands in the North of Holland through the Yssel River into Yssel Lake (better known as the Zuidersee); and, incidentally, improve navigation on the Yssel.

Accomplishing those objectives involves construction of three dams and locks on the lower Rhine, and dredging and channel straightening on both the Rhine and the Yssel.

Already well advanced is the uppermost dam and lock, located just below Arnhem at Doorwerth. It will be completed by the end of next year. The dam consists of concrete abutments and a center pier. Its two openings will be closed by taintor gates of record size—30 ft high, 157 ft long and weighing 250 tons. The lock, 722 ft long, will have a lift of 8.2 ft.

At the next lock and dam, downstream at Amerongen, excavation is about finished. Contracts for the concrete work will be awarded soon.

No operations at all have yet begun at the third lock and dam, farther downstream at Hagestein, south of Utrecht.

Scheduling of these Rhine projects is of particular importance because they must dovetail with a portion of the great Delta Works Plan (ENR Dec. 20, 1956, p. 42). One project in that plan is a dike and flood gates to close off the Haringvliet, a tidal estuary south of Rotterdam. That work will be finished in 1968.

The dam at Doorwerth cannot be placed in full operation before the estuary is closed. If it were, it would divert additional fresh Rhine water into the Yssel, thus reducing the flow of fresh water past Rotterdam. That could raise the danger of salt water incursion, which would, of course, be disastrous for the farmlands bordering the Lek above Rotterdam.

When the Haringvliet is closed a large volume of Rhine water that now reaches the sea via the Waal will be forced to flow through the Lek at Rot-

(*International continued p. 61*)

CONSULTING ENGINEER: DR. WAYNE C. TENG, CHICAGO

There's an Inland Structural Steel for every new construction idea

Space Framing... something new in the world of structural design . . . is beginning to capture the imagination of architects, engineers and builders, everywhere. Utilizing the strength and design flexibility of structural shapes to span long distances and enormous free space areas, it offers both a new approach to the solution of engineering problems, and an exciting contribution to the aesthetics of contemporary architecture.

Because Space Framing is a 3-dimensional concept, it makes use of the full potential value of every supporting member, achieves thrust and counterthrust simultaneously, and stabilizes weight. In contrast to 2-dimensional triangular elements in conventional plane construction, the basic unit in Space Framing may be the 3-dimensional tetrahedron, hexahedron or any similar basic form. Multiples of such elements can be used, varying size and pattern, to achieve simple curves, S or reversed curves, domes, variable shapes, thus permitting unlimited structural and design freedom.

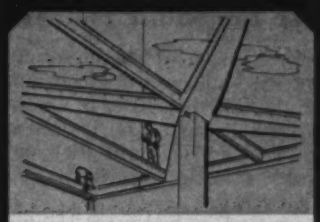
Construction cost per square foot is now comparable to conventional techniques, when efficiently engineered. Steel structural sections can be prefabricated, delivered to the site and erected speedily. What's more, modern electronic computers may be employed for the mathematics involved, markedly reducing design time. In domes, 3-dimensional construction minimizes the possibility of buckling and because of the clean geometric pattern, results in a remarkably beautiful visual effect.

For more information on modern space framing methods, see your local fabricator who now has INLAND structural steels available in all shapes and sizes—or call the American Institute of Steel Construction office in your area.

Use Steel *For Modern Construction*

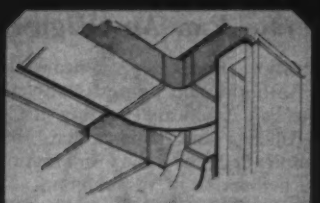
INLAND STEEL COMPANY
30 West Monroe Street, Chicago 3, Illinois

other inland construction products

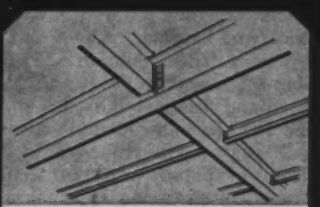


INLAND STEEL PLATES are offered in a wide range of gages and sizes with metallurgical and physical properties tailored to every construction requirement.

INLAND BEARING PILES AND STEEL SHEET PILING are used in foundations, retaining walls, coffer dams and other excavating and supporting jobs.



INLAND TI-CO® GALVANIZED SHEETS are the popular choice of metal contractors who install miles of air handling duct work in the largest commercial buildings. Their nonflaking quality adds years of corrosion-resisting service.



WIDE FLANGE BEAMS are the answer wherever more strength with less weight, longer spans with more open floor area, is the goal. Sizes from 8" to 24".

INLAND

INLAND STEEL CO.

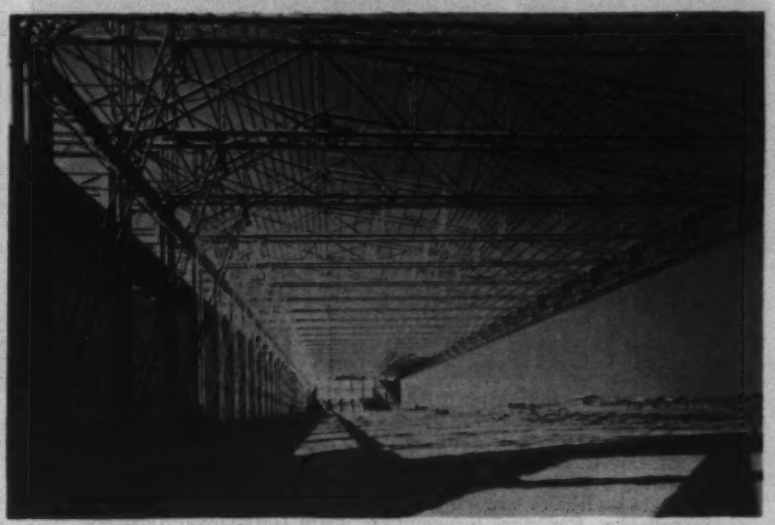
30 W. Monroe Street • Chicago 3, Ill.

terdam As a result, the salt water limit will recede, thus compensating for a reduced discharge in the Rhine and the Lek occasioned by the Yssel diversion. At present from 10 to 12% of the normal Rhine discharge goes down the Yssel. It is contemplated that this will be increased to 18 to 20%.

As noted, the dam at Doorwerth will regulate this discharge. The purpose of the other two dams, at Amerongen and Hagestein, is merely to maintain a navigable depth in the Rhine and the Lek. The depth will be increased from the present 5 ft to about 9 ft.

All three dams will be similar in type and dimensions. The taintor gates, normally closed to conserve water, will be raised at times of high water and to release ice. During such periods shipping will pass through the dam openings and avoid lockages. Under normal river conditions, however, the locks will be used. To conserve water the lock chambers will be divided by intermediate gates so that only a portion of a chamber are used when only a few vessels are being passed through.

One additional feature of the dams is worth noting—the incorporation of a small hydro-plant in the center pier. At Doorwerth, this pier is 250 ft long, and incorporates an intake and a sluiceway through which a controlled discharge of 5,300 cu ft per sec can be maintained. This will operate a 2,500-hp turbine connected to a generator whose power output will be used to drive the various electric motors in the dam and lock setup.



Airport Buildings Raced Olympics

Thanks to the Olympics, Rome's new $41-million International Airport will open next week—after 10 years in the building.

The new airfield, at the Mediterranean town of Fiumicino, will be the largest in Europe. It is scheduled to go into operation just 10 days before the start of the games. Construction lagged until 1958, when Public Works Minister Giuseppe Togni hustled after funds to get the project ready for the Rome Olympics.

Fiumicino airport spreads over 3,807 acres, an area larger than the City of Florence. It will be equipped to handle 400 commercial planes and 6,000 passengers a day. The 12-mile trip to Rome will be made along the Via del Mare, which is being widened to take on the extra traffic.

The Fiumicino airport flanks the historic Tiber River 7 ft above sea level on what used to be the Mediterranean Sea.

Fiumicino will accommodate planes on two landing strips. The one that will handle intercontinental traffic is 12,825 ft long and runs parallel to the sea. The strip for local, national and European flights is 7,709 ft long.

Structures at the airfield include a three-level terminal, a flight building, a four-plane repair hangar, and a church. The terminal measures 612 ft. by 262 ft. The airport also incorporates 16,000 ft of internal streets and roads; an artificial lake for fire fighting; 15-mi of underground pipes for a water sprinkling system; a parking area for 110 automobiles and 22 trucks; and a military "town" for 450 policemen and firemen.

Ciampino, Rome's old airport, will revert to a full military status.

DORRCLONE® DEGRITTING pays off at High Point Treatment Plant, N. C.

Operating in combination with a 16' dia. Dorr Detritor®, a 12" dia. DorrClone washes 190 gpm of grit from the collecting tank underflow at North Carolina's High Point Sewage Treatment Plant. DorrClone degritting reduces subsequent treatment loads, improves overall capacity and efficiency. Equipment is simple, compact and has no moving parts. Plan above shows a typical installation. For more information, write Dorr-Oliver Incorporated, Stamford, Connecticut.

Consulting Engineer: Wm. F. Freeman Inc., High Point, N. C.
Contractor: F. L. Showalter, Inc., Lynchburg, Va.

DORR-OLIVER
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

PHOENIX BRIDGE COMPANY
Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office and Shops
PHOENIXVILLE, PA.
Subsidiary—Phoenix Steel Corporation

DUDGEON HYDRAULIC JACKS
SALES RENTALS
• CAPACITY TO 600 TONS
FOR:
PILE TESTING
• UNDER-PINNING
• BRIDGES
• PIPE PUSHING
• SOIL TESTING
Write to Dept. R
RICHARD DUDGEON INC.
789 BERGEN ST. • ST 8-4040 • BROOKLYN, N. Y.

. . . International

Japan's War Debt Buys Power for South Vietnam

South Vietnam will begin construction of a $49-million hydroelectric project on the Da Nhim River in October.

An earthfill dam, 124.6 ft high and almost a mile long, will back up a lake with a storage capacity of about 120,000 acre-ft.

The project, to be located 150 miles northeast of Saigon, is scheduled to be generating half its 160,000-kw capacity by March 1963. The other half will be available by 1965.

The Da Nhim project is the principal feature of Japan's war reparation agreement with the South Vietnamese. Japan will pay $29.5 million in cash, $7.5 million in materials and equipment, and will lend another $7.5 million for materials and equipment. South Vietnam will contribute $4.5 million.

A Japanese consulting engineering firm, Nippon Koei, will handle technical problems and coordinate subsidiary contracts.

IRF Recommends Authority Operate Pan Am Highway

Creation of an Inter-American Highway Authority and prompt completion of the Pan American Highway in Central America and Panama have been recommended by the International Road Federation in Washington.

The proposals call for an expenditure of $15.4 million for the authority for operation and maintenance of the Pan American Highway for a six-year period and a further expenditure of about $73.6 million to complete construction of the route in Central America and Panama.

It is estimated that almost $255 million has been spent on the PanAm Way since ground was first broken.

The IRF recommendations are part of a 90-page report requested by the ministers of public works of Central American countries and Panama.

The proposed authority would have a board of directors with representation from each of the five Central American countries, Panama and the United States. IRF sees the authority as necessary for a uniformly maintained Inter-American Highway System.

ENR Index Is Ready

ENR's Index of Editorial Content for January through June is now being sent to those on our index mailing list. The index is free. Copies of the '58 and '59 indexes also are available. To put your name on the mailing list, write: Indexing Department, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Fifth of a Series

TIRE TALKS

On the record—off the road

Leading U. S. Rubber scientists and engineers answer questions on recent advances in off-the-road tires for which they were in a large measure responsible

Q What can be done to overcome the severe rock cutting and penetration conditions that exist here on the Mesabi range and that have resulted in so much early tire damage?

Mr. C. F. Engstrom, manager of off-road tire development. He and his staff of engineers have been instrumental in introducing many highly technical advances and innovations in specialized U. S. Royal tires.

A This is a problem that exists with most users of off-road tires. U. S. Rubber has developed an exclusive method of meeting this problem. Its S.R.T.*—*Steel Reinforced Tread*—puts a virtually impenetrable mat between the tread and shoulder areas and the nylon cord body. This mat consists of several thick layers of tread rubber containing hundreds of thousands of short lengths of brass coated, hardened steel filaments. These are closely interlaced, yet individually insulated to stop water seepage and rusting that may follow cuts or penetrations through the tread—often experienced in off-road operations.

DO YOU HAVE A QUESTION? U. S. Royal development engineers have custom-engineered many tires and special constructions to meet specific conditions or to overcome high tire or shut-down costs on specialized operations. You are invited to consult with Mr. Engstrom if you are seeking a solution to an individual tire operating problem. Write to him at

U.S. ROYAL TRUCK TIRES

United States Rubber

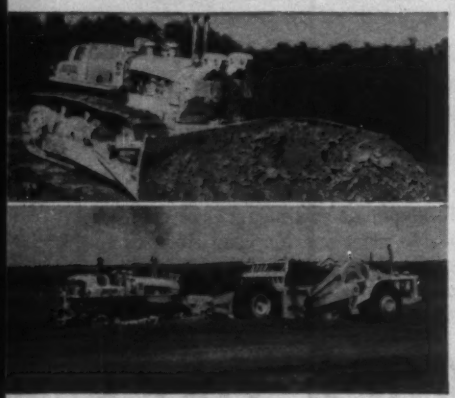
1230 Avenue of the Americas, New York 20, New York

EUCLID'S GREATER DIMENSION

Model C-6 is powered by a dependable GM 6-71 engine; delivers 211 net h.p. to power train . . . proven Torqmatic Drive provides full-power shift and fast response . . . almost unbelievable ease of handling . . . fast-as-a-fox maneuverability . . . fine visibility . . . exceptional balance with heavy duty attachments . . . accessibility for servicing that results in more productive time on the job.

The C-6 has the speed, power and maneuverability to handle every kind of tractor job . . . ripping, dozing, push loading, clearing, towing and other heavy work. Many major components including Torqmatic Drive, engine, and planetary drive axle have been job proved in thousands of Euclid earth-movers. Owners say that full-power shift, easy operation and fast response give the C-6 more work-ability than any other crawler in the 200 h.p. class.

Facts and figures on the Model C-6 and Model TC-12 "Eucs" are available from the Euclid dealer in your area . . . get in touch with him soon!



Greater Dimension in power and performance . . . TC-12 has 2 engines that deliver a total of 425 net h.p. . . . independent track drive with separate power train and Torqmatic Drive for each track . . . full-power shift and instantaneous reverse . . . 8 track rollers . . . unequalled accessibility for servicing . . . maneuverability and workability that have set new standards of big tractor performance.

Proven Torqmatic Drives deliver a smooth flow of power to each track . . . with full-power shift there's no delay for clutching and shifting . . . change direction with a flick of the wrist . . . 425 total net h.p. is automatically matched to every job requirement . . . rigid track alignment maintained by independently suspended track frames and final drives . . . years-ahead engineering reduces downtime and maintenance costs for a better return on investment.

Crawlers without full-power shift are obsolete . . . and costly!

GM GENERAL MOTORS EUCLID

EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

IN MODERN CRAWLER DESIGN

With over twenty-five years of experience in building heavy earth-moving equipment exclusively, Euclid offers a greater range of types and capacities, a greater background of field experience, and a greater return on your equipment investment.

One example of this greater dimension was the introduction of the Model TC-12 Crawler over 5 years ago. Here was an entirely new concept of tractor design . . . two engines, each driving a separate track through its own Torqmatic Drive . . . unequalled power and work-ability . . . performance that set a new standard of crawler productivity . . . ease of operation and servicing that is still unsurpassed in the industry.

Recently the Model C-6 Euclid tractor went into production after the most comprehensive field trials and proving ground testing ever given any new Euclid model. It, too, has Torqmatic Drive and full-power shift as well as many of the advanced design features of the bigger TC-12. And like the "Twin", the new C-6 utilizes major components that have been job proved in thousands of "Eucs" in construction, mine and quarry service. For instance, the Allison converter and semi-automatic transmission "package" has long since passed the pioneering and development stage . . . it's been used in "Euc" scrapers, rear-dump haulers and other models for years. These two Euclid crawlers provide so much more work-ability that they obsolete tractors without the operating advantages of full-power shift.

EUCLID Division of General Motors • Cleveland 17, Ohio

COAL TAR makes the vital difference . . .

IN "BLACK TOP" SEALERS

that guard against moisture or petroleum attack on pavements

One of the problems of popular bituminous pavements is their porosity: water penetrates the surface, stripping away the binder and spalling the pavement when freezing occurs. And distilled petroleum products act as solvents on some types of bituminous pavements, leaving them soft, spongy and even more vulnerable to water attack. • Koppers Pavement Sealers, because of their principal component, coal tar, are totally immune to water *and* to petroleum solvents; give bituminous pavements a tight, smooth protective layer that beautifies, too. • Rubberized types, meeting the latest Federal and Air Force specifications, resist jet blast and are almost a "must" for aprons and taxiways. But you needn't be in airport construction to find these sealers useful: parking lots, truck terminals, city streets, driveways; all bituminous pavements can be given extended life with Koppers Pavement Sealers. Write or call your Koppers District Office for more details and literature.

KOPPERS TAR PRODUCTS DIVISION, PITTSBURGH 19, PA.

District Offices: BOSTON • CHICAGO • LOS ANGELES • PITTSBURGH • NEW YORK • WOODWARD, ALABAMA

Large Fork Lift Loads 35 Tons

The Ranger 700, believed to be the largest general purpose fork truck ever made, has payload capacity of 35 tons.

The giant truck stands 12 ft high at the cab, is 29 ft long without forks and 11 ft wide. Off-the-road type pneumatic tires and four-wheel drive make up the truck's running gear.

Since the large loads the Ranger 700 is capable of carrying could easily obstruct the operator's forward view, the truck has two sets of operating controls. By swiveling his bucket seat the operator can drive in reverse, using the rear controls, and have complete visibility.

Power steering, power-shift transmission and four-wheel power assisted hydraulic brakes are standard equipment on the trucks. Lifting forks, which weight 3,000 lb each, are moved apart or together hydraulically to fit different load widths. Forks also can be moved simultaneously left or right to pick up off center loads. A six-cylinder diesel engine of 425-cu in. displacement powers the Ranger, coupled with a Clark four-speed transmission and torque converter. Top travel speed is 12 mph.

Two 9½-in.-dia lift cylinders and two 9½-in. tilt cylinders operate the lifting and tiering mechanism for the lift forks.

The hydraulic system contains four pumps, one each for steering controls, the lift and tilt mechanism, the side shifting device for the lift forks and the torque converter. Industrial Truck Div., Clark Equipment Co., Battle Creek, Mich.

Drill on Crawler Has Versatility

The G-900 Tracdril is a crawler-mounted drilling rig that can drill over either track at right angles. It can cover a 17-ft-dia 180° arc.

Capable of drilling horizontal snake-holes only 25 in. from the ground, the Tracdril's boom can be raised to a height of 11 ft for horizontal breast-holes. Carriage dump adjusts through 360°, and 85° carriage swing is said to allow vertical holes to be drillled regardless of slope conditions.

A 12-hp tramming team, powerful enough to tow a 600 cfm compressor up a 20% grade or maneuver in rugged terrain, provides the driving force for the G-900. Specially constructed Oliver crawlers have 1,350 sq in. of ground contact. Five lower track wheels, manganese steel pads and 10-in.-wide tracks are provided. When the tramming throttle is released, "dead man" controls return to neutral while automatic brakes lock the tracks. Throw-out clutches disengage tramming motors for towing.

All drilling maneuvers—swing, lift, dump and tilt—are hydraulically controlled. The machine has dual controls, one set on the forward end of the drill boom, the other at the tramming position. Chicago Pneumatic Tool Company, 6 East 44th St., New York 17, N. Y.

MINIATURE 2-WAY RADIO SYSTEM lets you SPEAK and be HEARD under ANY NOISE CONDITIONS!

the SEISCOR TELEPATH . . . is a portable industrial-type communications system that becomes a part of your wearing apparel. Crystal-controlled circuit plus noise-cancelling mike and earphones make it the best way to communicate in poor visibility or high noise conditions!

- Fully transistorized printed circuit
- Crystal-controlled superheterodyne receiver
- Crystal-controlled transmitter
- Long battery life
- For any single frequency between 28-55 mc., A.M.
- No license required on 27 mc. units.
- Priced from $350.00 per unit.

MODEL HR
Hardhat with built-in transceiver, antenna, earphones and mike. High and low noise level models available.

MODEL BR
Belt-clip transceiver and headset with built-in antenna, earphones and mike. High and low noise level models available.

Let Seiscor Engineers analyze your short-range communications problems. Example: Special units have been designed into protective clothing for crash-crew fire fighters.

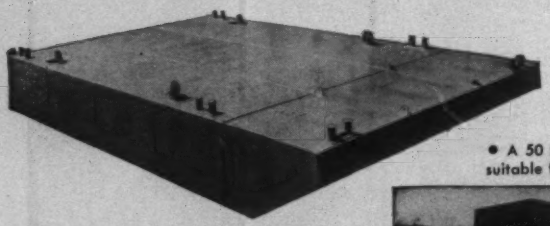
FIND OUT TODAY HOW TELEPATH CAN IMPROVE YOUR SHORT RANGE COMMUNICATIONS!

Write for name of nearest TELEPATH dealer, and complete information on versatile TELEPATH communications.

SEISCOR
A DIVISION OF SEISMOGRAPH SERVICE CORPORATION
BOX 1590, TULSA, OKLAHOMA

MANITOWOC

SECTIONAL BARGES



• A 50 x 30 foot four-section barge suitable for 2 yard dragline or clam.

★ Designed specifically for the contractor who has need for transporting his floating equipment in a short time with the least effort and expense. By quickly and easily bolting together any number of sections, the contractor has an extremely adaptable piece of equipment to provide an economical solution to any floating problem. Dragline, trench hoe or clamshell dredging, pile driving, crane lifting, pumping, pipe laying or floating equipment are some of the many uses of the versatile Manitowoc Sectional Barge.

Write for additional information and prices. Sold direct or through Manitowoc Engineering Corporation distributors.

• Easily transported by rail or highway.

• Assembled barge with crane and spuds.

MANITOWOC SHIPBUILDING, INC.
MANITOWOC, WISCONSIN

FOR TRULY

UNDISTURBED SAMPLES
FROM DIFFICULT FORMATIONS

ACKER-DENISON CORE BARRELS

THE ACKER-DENISON CORE BARREL PERFORMS WHERE OTHERS FAIL

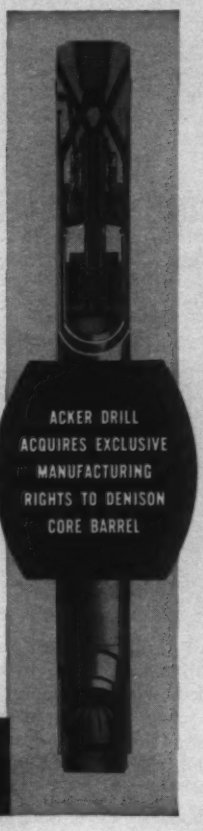
The ability of the Acker-Denison Core Barrel to obtain **undisturbed samples** from sand, hard clays, silt and other difficult cohesive soil conditions accounts for its worldwide acceptance by Soil Engineers.

ACKER-DENISON CORE BARREL —PROVED AND IMPROVED

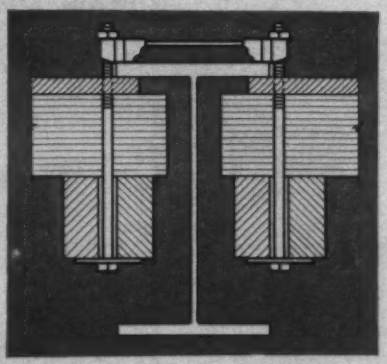
While the basic features of the original Denison are duplicated in the samplers manufactured by Acker, numerous improvements suggested by Acker's 40 years of soil sampling experience are incorporated in the new Acker-Denison. It is these improvements that make the Acker-Denison even more useful and efficient than before!

Remember, no other manufacturer can offer the improved performance and exclusive patented features of Acker's new Denison Core Barrel. This proud achievement of Acker development and progress is exclusively Acker!

Write for Free Copy of Bulletin 1100. ENR



ACKER DRILL CO., INC.
P. O. BOX 830 • SCRANTON 2, PA.



Form Hanger Bar Adjusts For Steel and Concrete

Adjustable hangers for supporting forms from either steel beams or concrete girders are easy both to assemble and to strip, according to the manufacturer.

A steel rod with special bearing attachments or feet, is placed horizontally across the beams or girders. Sawtooth edges on the bottom of the feet bite into the supporting members, preventing any transverse or longitudinal movement of the hanger upon application of the load of the forms.

Coarse-threaded, ½-in.-dia bolts supporting the forms are passed up through the ends of the hanger and held in place by a square nut. All adjustment is made from the top of the deck and the bolts are removed without binding. Safe working loads, according to the manufacturer, are 8,000 lb on steel beams and 6,000 lb on concrete girders. Superior Concrete Accessories, 9301 King St., Franklin Park, Ill.

Motor and Reducer Line Match Up for Changing

Versatility and adaptability are the design criteria of a "C-flange" line of gear and motor units available in a range from 1/12 to 2 hp.

Keyed to the new design is the quick change character of the gear and motor units. When drive conditions change, either the motor or reducer may be changed without scrapping the other element. A wide range of capacities and reductions are available from off-the shelf stocks.

Motors and reducers have separate flange connections so the units may be supplied either as a complete assembly or separate parts. The reducer alone can be supplied for application to the customer's standard NEMA motors. Reduction trains are available from 5:1 to 60:1. Reductions are in increments of fives up to 30:1 and above this reduction increments are by tens. Morse Chain Co., Ithaca, N. Y.

USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

More Power Per Pound . . . More Savings Per Job

Figure it out. The new Homelite Model 8A generator weighs only 143 pounds. Yet it gives you full 3000 watts . . . with voltage automatically controlled within four per cent from no load to full load. That's more steady, dependable power per pound than any other carryable generator. And when it comes to money, you get more savings per job with this power house . . . savings in transportation, labor and maintenance. A man can quickly put it to work any place . . . close to the many electric tools and floodlights it operates. No long, power-hungry cables to dull tools or dim lights. No troublemakers. No DC brushes. No commutator. No DC windings on armature. Two types are available . . . 115 volt and 115/230 volt, both 60 cycle, AC. Write for convincing, on-your-job demonstration today.

Homelite factory branches are located throughout the country. Your nearest one is as near as your phone. Call them or write for convincing demonstration or rapid service in any way.

HOMELITE
CARRYABLE
GENERATORS PUMPS • CHAIN SAWS, BLOWERS

HOMELITE • A DIVISION OF TEXTRON INC., 1108 RIVERDALE AVE., PORT CHESTER, N. Y.
In Canada — Terry Machinery Co., Ltd.

WATER WORRIES?

Cut down time on the job site, change "wet" to dry excavation with dewatering engineering, wellpoints, pumping systems,

service! John W. **STANG** Corporation

Los Angeles • Tacoma • Omaha • St. Petersburg

BELLS

for all types of installations

Single stroke or vibrating

In all voltages—DC 6 to 220 v. AC 6 to 250 v.

in sizes from 3" to 12"

For all telephone or alarm systems. Housings of sturdy cast aluminum with excellent clarity and high decibel output. Underwriters Laboratories listed. Also a full line of cow bells and buzzers.

Write for literature

HOSE-McCANN TELEPHONE CO., INC.

25th St. & 3rd Ave., Brooklyn 32, N.Y.

Interceptor Sewer Bid Two Ways

The Department of Public Works, Division of Engineering, took bids on both pipe and monolithic construction for Section 2 of Cincinnati, Ohio's auxiliary Mill Creek interceptor sewer. The award at $2,316,876, to the joint venture of Frazier-Davis Construction Co., St. Louis, and the Hunkin-Conkey Construction Co., Cleveland, was on a 96 in. dia cement concrete pipe sewer. This was almost 31% below the Division of Sewage Disposal engineers estimate.

All nine bidders priced the pipe sewer and only two priced the 96 in. dia monolithic sewer alternate.

Work includes construction of the sewer; regulators; tide gates, and other appurtenances; remodeling of existing manholes and interception devices; and other related work.

The contractor must furnish all materials.

No unusual or difficult conditions are anticipated, but the close proximity of Mill Creek to the sewer may cause some water seepage.

Minimum wages in effect when the bids were placed included: carpenter, $3.725; crane & power shovel operators, $3.70; bulldozer operator, $3.475; pipe layer, $2.85; flagmen, watchmen and waterboys, $2.10. Since the project will take over two years to complete, the contractor in arriving at his unit prices, took into consideration possible wage increases during the construction period.

The bidding on both alternates included:

Cement Concrete Pipe Sewer Alternate

1C Frazier-Davis Constr. Co., St. Louis, and Hunkin-Conkey Constr. Co., Cleveland	$2,316,876
2 Square & Marra Constr. Co., Indianapolis	2,503,050
9 The W. L. Harper Co., Cincinnati	3,558,394
EE Div. of Sewage Disposal, Cincinnati	3,351,013

Monolithic Sewer Alternate

1 Square & Marra Constr. Co., Indianapolis	$2,706,290
2 Foley Constr. Co., Norwood, O	2,960,481
EE Div. of Sewage Disposal, Cincinnati	4,042,029

Bids: 3-29-60 Items	Unit	Quantity	Unit Prices 1C	2
Cmt conc pipe sewer, 30"	lf	17	$55.00	$150.00
24"	lf	16	50.00	140.00
21"	lf	12	43.00	50.00
18"	lf	164	56.00	40.00
15"	lf	90	58.00	40.00
12"	lf	29	23.00	30.00
10"	lf	125	45.00	30.00
8"	lf	260	39.00	30.00
Manhole, standard	ea	8	3,000	2,000
Remodel existing manhole at				
Draper St	ls	job	550.00	500.00
Mill Crk interceptor	ls	job	150.00	300.00
Yonker St	ls	job	250.00	300.00
Remodel interception device,				
Vinton	ls	job	350.00	300.00
Marshall	ls	job	400.00	500.00
Denham	ls	job	1,000	500.00
Bates Run	ls	job	1,000	500.00
Arlington	ls	job	500.00	500.00
Remodel intercept connection	ea	5	1,800	1,500
Regulator, Marshall Ave	ls	job	11,000	8,500
Denham St	ls	job	11,000	8,000
Manhole, standard	ea	1	1,700	1,200
Regulator, Bates Run	ls	job	10,000	8,000
Arlington St	ls	job	15,000	9,000
West Fork	ls	job	11,000	8,500
Tide gate, 60"	ls	job	3,800	2,500
36"	ls	job	1,400	1,000
Remov & seal pipe sewer, 8"	lf	65	4.00	12.00
15"	lf	80	5.00	12.00
Remov existing gratings	ea	2	300.00	100.00
Portland cement, additional	bbl	100	4.00	7.00
Conc masonry,				
cl C, additional	cy	150	70.00	60.00
cl G, additional	cy	2,500	20.00	40.00
Reinf steel, additional	t	3	300.00	400.00
Excavation, additional	cy	500	1.50	10.00
Gravel refill, additional	cy	500	4.50	6.00
Wood shtg & bracing ordered & left in place	Mfbm	150	250.00	300.00
Alt. 1,98" ϕ monolithic sewer	lf	10,162	nb	240.00
Alt. 2,96" ϕ cmt conc pipe sew	lf	10,162	204.50	220.00

Completion schedule: 750 cal days
Liquidated damages: $100/day

Dredging Bids Are All Under Estimate

A 30-in. hydraulic dredge, electrically operated from the shore, will dredge 3,029,800 cu yd of material from the Redwood City Harbor, San Mateo County, Calif., to provide a turning basin approximately 700 ft wide by 2,200 ft long and a channel 300 ft wide by 14,000 ft long. Dredging will be to a project depth of 30 ft, plus 2-ft overdepth.

The Corps of Engineers, San Francisco, awarded the contract at $843,344 to Utah Dredging Co., San Francisco, on a low bid 42.6% under the engineers estimate. All six bids were under the estimate. Col. John S. Harnett is district engineer and J. E. Deignan is chief of the engineering division of the San Francisco Corps of Engineers.

Prevailing wages include: dredge operator, $4.25; maintenance engineer, $3.85; deck hands, firemen & oilers, $3.20; leverman, $3.20; mate, $3.60; welder, $3.85; levee foreman, $3.55.

Work commenced on April 16, and 245 days are allowed for its completion. There are no liquidated damages.

The bids on this hydraulic dredging job included:

1C Utah Dredging Co., San Francisco, Calif.	$843,344
2 Hydraulic Dredging Co., Ltd., Oakland, Calif.	889,552
6 J. Adron Troxell, Seattle, Wash.	1,319,127
EE Corps of Engineers, San Francisco	1,468,779

Bids: 3-15-60 Items	Unit	Quantity	Unit Prices 1C	2
Mobilize & demobilize	ls	job	$243,444	$263,592
Dredge section A	cy	2,065,900	0.198	0.20
B	cy	443,100	0.198	0.20
C	cy	326,000	0.198	0.20
D	cy	194,800	0.198	0.20

THEY USED IT HERE . . . *Bethlehem steel beams and columns, joists, and Slabform were chosen for Guidera & Goodman's 11-story Hackensack apartment after careful analysis of costs. From left to right: John Guidera, Ralph Solow, Dan Reed, and Leo Goodman. Erwin Gerber is the architect.*

HERE'S WHY NEW JERSEY APARTMENT BUILDER SAYS:

Steel construction saves time for the contractor

BECAUSE THEY LIKED IT HERE . . . *River View Towers, attractive, steel-framed apartment in Fort Lee, N. J., has balcony views of the George Washington Bridge.*

For the 10-story River View Towers in Fort Lee, N. J., Guidera & Goodman of Englewood used steel all the way up—steel frame, open-web joists, solid steel centering (Bethlehem Slabform).

"Steel gave us complete maneuverability," said the builders. "No schedule delays, no waiting for good weather, no formwork. We knew which crews to schedule and when. No lost time sitting around."

And after careful cost analysis, and comparison with other materials, Guidera & Goodman scheduled their new 11-story Hackensack apartment for the same steel construction.

Steel

for strength
. . . economy
. . . versatility

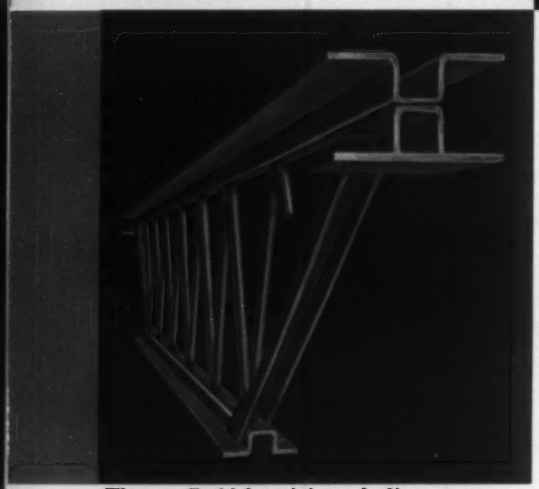
BETHLEHEM STEEL

BETHLEHEM STEEL

Contractors like Steel Open-web Joists because

- They arrive at the job site, *on schedule*, fully fabricated, marked, ready for immediate and easy placing.
- Field-welding secures them firmly in place.
- Conduit, pipe, ductwork can be run through the open-webs in any direction. No drilling or complicated angle-work in narrow corners.
- All the accessories . . . bridging, end-wall anchors, ceiling extensions, etc. . . . are supplied with them.

The eleven story apartment at Hackensack is completely steel-framed including Bethlehem open-web joists.



The new Bethlehem joist embodies many years of experience in design, production, and marketing of steel joists.

NEW BETHLEHEM "S" SERIES JOISTS WITH COLD-FORMED CHORDS

The newest member of the Bethlehem family of joists is an "S" series joist using cold-formed top and bottom chords. Cold-forming of the chords allows the metal to be placed in the best position for sustaining loads. It provides additional strength due to cold-working of the chord sections, increasing both the safety factor and resistance to damage in handling. Wide, flat-surfaced chord members offer excellent bearing area for the support of centering, subpurlins, precast plank, etc., and firm flat backing for ceiling lath. The new joist will be available this year.

BETHLEHEM STEEL

Here's why contractors like to work with SLABFORM

1. Roof slabs of lightweight insulating concrete can be poured over Slabform at support spacings much greater than the economical use of flexible centerings will permit.

2. Structural floor slabs poured over Slabform on steel beams often result in savings as much as one-third of the usual forming costs using conventional materials and methods.

3. Slabform provides a solid, safe working platform for all trades.

4. Slabform is tough—it readily takes normal construction abuse.

5. Properly attached, Slabform provides lateral restraint for supporting members and stiffens the entire assembly.

6. Heavy-Duty and Extra Heavy-Duty Slabform particularly can be furnished in special lengths longer than the standard lengths indicated.

BETHLEHEM SLABFORM*

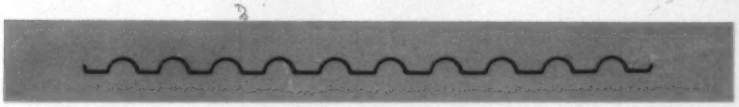
Slabform, Bethlehem's solid steel centering, is a high-strength, formed steel sheet used both as a permanent form for poured concrete and as a permanent supporting member for lightweight insulating concrete fills in roofs. Slabform is made from steel with a yield point testing consistently over 90,000 psi. Its longitudinal ribs give it exceptional strength.

*Registered

BETHLEHEM STEEL

Installing Slabform, Bethlehem's solid steel centering, on the fourth floor of the apartment building.

Bethlehem Now Makes Slabform in Five Gages



STANDARD SLABFORM Standard Lengths: 6′3″, 8′3″, 10′3″, and 12′3″ **28 GAGE**

HEAVY-DUTY SLABFORM Standard Lengths: 6′0″, to 18′6″ **28 GAGE**

EXTRA HEAVY-DUTY SLABFORM Standard Lengths: 6′0″ to 21′6″ **24, 22, 20 GAGE**

STEEL CONSTRUCTION, *including Bethlehem Slabform, was used in constructing new Pier No. 7 in New York Harbor.*

A Complete Line of Construction Steel

The list of Bethlehem publications at the right is representative of those describing steel products for construction. To get those you want, just circle the number in the coupon below.

1. Open-Web Steel Joists
2. Slabform
3. Structural Shapes
4. The Welding of Concrete Reinforcing Bars
5. H-Piles
6. Sheet Piling
7. Steel Plates
8. Abrasion-Resisting Steels
9. Wire Rope for Construction Equipment
10. Wire Rope Slings and Fittings
11. Stress-Relieved Strand for Prestressed Concrete
12. Solving Drainage Problems (steel culverts)
13. Hollow Drill Steel
14. Rock Bolts
15. Steel Pipe
16. Highway Guard Rail
17. Building The Chase Manhattan Bank
18. News Bulletin—Fabricated Structural Steel

PUBLICATIONS DEPARTMENT
BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

Please send me the literature as indicated:

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
11. 12. 13. 14. 15. 16. 17. 18.

*Name*_____

*Address*_____

_____

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Materials Prices

Monthly Market Quotations by ENR Field Reporters

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.50	$5.30	$5.675	$12.25	.....	$110.00	$130.00	$6.975	$9.75	$6.60	.....
Chicago Area	5.50	5.30	5.675	12.25	$6.50	110.00	130.00	6.975	9.75	6.60	.....
Pittsburgh Area	5.50	5.30	5.675	12.25	6.50	110.00	130.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.50	5.30	5.675	12.25	6.50	110.00	130.00	6.975	9.75	6.60	14.75
Cleveland	.....	.....	5.675	12.25	6.50	.....	.....	.....	.....	.....	14.75
Youngstown Area	.....	.....	5.675	.....	.....	.....	.....	.....	9.75	.....	.....
Geneva	5.50	5.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	6.30	.....	6.375	.....	6.60	.....	.....	.....	9.75	6.875	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	60.75	9.75	6.60	.....

* Fairless Works, $5.575.

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	STRUCTURAL SHAPES Extras W	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	REINFORCING BARS Extras, New York:	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	EXPANDED METAL LATH Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	7.29–8.29*eV*		8.75	$8.75		$53.00*S*	$57.00*S*	
Baltimore	9.70		9.00*T*			44.80	49.00	
Birmingham	9.00*tv*		8.51–9.94*tyV*	8.51–9.94*ty*		61.00*pK*	67.00*pK*	
Boston	8.21–9.31 *KmV*		8.75*t*	8.75*t*		49.50 *K*	54.00 *K*	
Chicago	6.96–8.23*pqV*		6.90–7.05*pqV*	6.90–7.05*pqV*		52.00*tU*	58.00*tU*	
Cincinnati	7.52–8.79*abtpqV*		8.16*tt*	....		44.50 *Kq*	49.00*mn Kq*	
Cleveland	7.33–8.62*vpqV*		7.14*tt*	....		48.50 *KL*	51.00 *KL*	
Dallas	7.71–9.49*MeV*		9.00	9.00		44.00*u*	48.50*u*	
Denver	10.16*cK*		9.35*c*	....		53.00*m*	59.00*m*	
Detroit	7.52–8.79*RMeVq*		7.37*Q*	11.85*Q*		57.00*O*	74.00*O*	
Kansas City	8.78*sT*		8.21*N*	....		51.00	55.00	
Los Angeles	8.44–9.59*dtuV*		7.35*frt*	....		55.00*S*	64.00*S*	
Minneapolis	7.78–8.17*pqV*		9.36*T*	9.36*T*		44.50 *K*	49.50 *K*	
Montreal	7.90–8.80*CF*/8.30–8.90*AV*		7.00/7.50*FG*	7.00/7.50*FG*		65.70*h*	70.20*h*	
New Orleans	....		8.00*pkt*	....		50.00 *K*	55.00 *K*	
New York	8.02–8.84*Vzs*		8.60*tv*	8.60*y*		52.00*m*	59.00*mn*	
Philadelphia	7.60–8.40*bwyzsV*		8.22*wy*	8.22*y*		44.50*tU*	55.20*tU*	
Pittsburgh	6.96–8.23*pqV*		7.35*y*	....		58.50*trw*	64.50*trw*	
St. Louis	7.19–8.45*ntxyV*		7.35‡*nQ*	7.35‡*nQ*		61.00*wx K*	69.00*wx K*	
San Francisco	8.43–10.34*ssV*		9.85*jS*	....		53.00*S*	58.00*S*	
Seattle	8.30–10.49*aDeV*		8.85*DM*	....		67.00‡*nD*	73.50‡*nD*	
Toronto	9.20*H*		7.40	7.40		49.50*mI*	44.85*qI*	

EXTRAS, per cwt—Quantity (applies to LCL mix): under 1,000, +$1.50; 1,000–1999, +$1.30; 2000–3999, +$1.10; 4000–9999, +90¢; 10,000–19,999, +70¢; 20,000–39,999, +50¢; 40,000–99,999, +30¢; 100,000–199,999, +20¢; 200,000–499,999, +10¢; 500,000 up, zone. Bending: bars, #3 +70¢, #4 +60¢, #5 +50¢, #6 +40¢, #7 +35¢, #8 +30¢, #9 +25¢, #10, #11 +20¢. Shearing (details and placing from designs by others): over 800 tons, +45¢; 300–800 tons, +50¢; 50 but not over 300 tons, +55¢; 20–49 tons, +60¢; 10 but not over 20 tons, +65¢; 5–9 tons, +70¢; under 5 tons, +$1.00 but not over $10; under 1 ton, +$2.00 but not over $5. Min. charge $25. Dodge only: +60¢. (except in New York City and surrounding metropolitan area where bending must be done on the job). Shearing (details and placing from designs by others): over 800 tons, +45¢; 300–800 tons, +50¢; 50 but not over $4500; 75–100 tons, +45¢ but not over $3750; 50–74 tons, +50¢ but not over $3700; 30–74 tons, +75¢ but not over $975; 5–19 tons, +85¢ but not over $800; under 5 tons, +$1.00 but not over $45. Min. charge $25. Dodge only: +60¢.

Quantity extras per cwt: Items: 10,000# and over, base; 5,000–9,999#, +10¢; 2,000–4,999#, +20¢; 1,000–1,999#, +30¢; 400–999#, +$1.75; under 100#, +$1.75. Order: 20,000# and over, base; 10,000–19,999#, +10¢; 5,000–9,999#, +20¢; 2,000–4,999#, +30¢; 1,000–1,999#, +$1; 400–999#, +$2; under 400#, +$5.

	4 × 10 in., No. 8 & 10 wires		4 × 12 in., No. 8 & 12 wires		8 × 8 in., No. 6 & 6 wires	
Joliet, Ill., Donora, Pa., Monessen, Pa.		$7.04		$6.62		$4.17

*‡ Delivered ** Aver. of Canadian & American */ add 4% sales tax *a 2000–4999# *b 10,000–19,999#, fob city *c 20 tons or over *d 10,000–29,999# *e Intermediate struct'l *f Incl. delivery in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p 500 sq. yd. or more. *q 2.6 lb *r less 2% disc. for cash *s 10,000# item in 20,000# order *t less ½% disc. 10 days *u add 10¢ switch *v incl 15¢ del. *w truck lots. *x add 2% sales tax *y add 15¢ del. *z add 10¢ del. *A American made. *C Canadian made. *D ½% for cash. *E 30,000# or over. *F Federal tax exempt for bldgs. *G add 10¢ del. *H 8.85 without tariff charges. *I 3 lb $80.00. *J 4 lb $47.50. *K less 2% disc. 10 days *L F.o.b. Youngstown plant *M 5,000–9,999# *N 2,000–19,999# *O 100 cy lots *Q 5 tons to CL *R: revised *S less 2% disc. 10th *T less ½% disc, 10th of mo. *U less 2% disc 10 days *V varies according to type and size *W Chicago, Cincinnati, Cleveland, Dallas, Detroit, New York, Philadelphia, St. Louis, and Pittsburgh.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEX‡	ASBESTOS CEMENT PIPE T per lin. ft. 6" Press Cl. 150	ASBESTOS CEMENT PIPE T per lin. ft. 12" Sew Cl. 1500	CLAY SEWER PIPE— Per ft., delivered, car load ASTMC 13-55 8 in.	12 in.	ASTMC 200-55T 24 in.	36 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTMC 4-55 6 in.	8 in.	CONCRETE SEWER PIPE‡ Per ft., delivered ASTMC 14-55 12 in.	24 in.
Atlanta	130.5	$1.52/1.60	$2.36/2.48	$0.55*r*	$1.04*r*	$4.50*r*	$12.60*r*	$309.00*rr*	$334.00*rr*	$0.95*mKr*	$3.75*mKr*
Baltimore	140.1	1.61/1.69	2.19/2.30	.665	1.20	3.05	12.71	187.80	299.20	1.01	2.75
Birmingham	135.8	1.52/1.60	2.36/2.37	.50*r*	.95*r*	4.14*rw*	13.50*rw*	295.00*rz*	430.00*rz*	1.75*rS*	2.75*rS*
Boston	143.1	1.63/1.71	2.19/2.30	.84*rtL*	1.55*rtL*	6.29*rtM*	.....	344.00*r*	348.00*r*	1.56*S*	3.60*S*
Chicago	139.8	1.61/1.69	2.19/2.30	.99*rm*	1.79*rm*	7.53*rm*	21.16*rm*	330.00*Br*	330.00*Br*	1.30	4.00
Cincinnati	136.5	1.63/1.71	2.19/2.30	.616*rt*	1.188*rt*	4.725*rt*	12.40*r*	370.00*r*	400.00*r*	.85*rAB*	3.25*rAB*
Cleveland	141.6	1.63/1.71	2.19/2.30	.66*BCN*	1.27*tBC*	8.47*tBC*	23.45*tBC*	179 40*mBC*	276.80*mBC*	1.35	3.60*P*
Dallas	137.8	1.63/1.71	2.36/2.37	.573‡*B*	1.09‡*B*	4.75‡*B*	10.53‡*B*	.....	.....	1.27*BD*	2.95*BD*
Denver	144.9	1.71/1.80	2.36/2.48	.58*mr*	1.00*mr*	4.98*r*	.....	460.00*mr*	640.00*mr*	1.05*m*	3.50*m*
Detroit	141.9	1.63/1.71	2.19/2.30	.97*nk*	1.86*nk*	7.48*nk*	19.95*nk*	212.00*mk*	327.00*mk*	1.40*k*	5.23*k*
Kansas City	138.5	1.63/1.71	2.36/2.37	.62*r*	1.12*r*	6.324*kr*	16.56*r*	315.00*r*	625.00*r*	1.70*r*	4.25*r*
Los Angeles	148.6	1.67/1.79	2.19/2.30	.82*bl*	1.78*hIS*	7.19*hS*	16.90*hIS*	410.00*IS*	590.00*IS*	1.24*nE*	3.68*nE*
Minneapolis	144.8	1.67/1.75	2.36/2.37	1.00*nB*	1.80*nB*	7.75*nB*	.....	.....	.....	3.19*DFH*	6.31*DFH*
Montreal	132.3	1.61/1.69	2.36/2.37	1.13*u*	2.00*u*	7.00*u*	13.50*u*	288.00	545.00	1.17*D*	3.11‡*pD*
New Orleans	132.3	1.61/1.69	2.36/2.37	.566*r*	1.078*r*	5.65*r*	.....	240.50*pr*	586.00	1.41*tR*	3.76*tl*
New York	138.5	1.63/1.71	2.19/2.30	.94	1.76*R*	12.89	35.61	240.81	389.84	1.50‡*B*	3.60‡*B*
Philadelphia	137.8	1.61/1.69	2.19/2.30	.72‡	1.40‡	9.03‡*s*	24.68‡*s*	220.00‡	330.00‡	1.30‡*A*	4.00‡*A*
Pittsburgh	142.7	1.63/1.71	2.19/2.30	.66*K*	1.27*K*	4.95*K*	12.92*K*	197.03	302.00	1.06*DS*	3.93*DB*
St. Louis	136.8	1.61/1.69	2.36/2.37	.62*r*	1.23*r*	5.10*r*	13.95*rS*	300.00*r*	350.00*r*	1.75*i*	4.05
San Francisco	148.6	1.67/1.79	2.19/2.30	.861*d*	1.861*d*	7.53‡*d*	18.00‡*d*	360.00‡*i*	620.00‡*i*	1.05‡*Q*	3.30‡*Q*
Seattle	149.0	1.71/1.80	2.19/2.30	.858*k*	1.86*kk*	7.61*k*	.....	260.00*ck*	.....	1.00*by*	4.50*by*
Toronto	.....	.....	.....	.80*F*	1.50*F*	6.00*F*	.....	185.00*F*	305.00*F*	1.27*F*	5.16*F*

*‡ Extra quality. *‡ delivered. */ add 4% sales tax *a PRICE INDEXES or CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE 5 PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 125.5; Burlington, N. J., 134.6. For explanation of index see ENR Sept. 29, 1955 page 139. *b Extra strength. *c 4-in., $130. *d SS361-A. *f 21 in. *g culvert pipe; reinf., ASTM C 76–56. *h reinf., ASTM C 76–54. *i reinf., ASTM C 76–55. *j centrispun. *k ess 2% disc. for cash. *l fob plant. *m truck del. *n LCL del., fob truck. *o less 5% disc. 10th. *p freight allowed to destination in city. *u 35,000# minimum. *r less 2% disc. 10 days. *s 1 ft lengths. *u CSA A 60. *v standard strength. *w SS; add 20% for d.s. *x fob city. *y Reinforced. *z Upper value in range based on both truck lots and less than truck lots, fob city; lower value truck lots delivered. *A single strength. *B truckload. *C less 2% disc. 10th. *D ASTM 76–57. *E less 1% disc. 10 days. *F less 2% disc. 30 days. *G LCL. *H CL. *I fob origin, freight allowed. *J reinf. B14–15. *K Less 2% disc. 15 days. *L ASTM 13–57. *M ASTM 200–57. *N 2 ft lengths. Truckiots. *O add 2% Sales Tax. *P 16 in. *Q less 1% disc. 10th. *S ASTMC 72, 12' 1.55, 24' 4.00. *T Second price transite pipe.

	*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnotes																							
	½ in. Butt Weld‡ Black %	½ in. Butt Weld‡ Galv. %	¾ in. Butt Weld‡ Black %	¾ in. Butt Weld‡ Galv. %	1 in. Butt Weld‡ Black %	1 in. Butt Weld‡ Galv. %	1¼ in. Butt Weld‡ Black %	1¼ in. Butt Weld‡ Galv. %	1½ in. Butt Weld‡ Black %	1½ in. Butt Weld‡ Galv. %	2 in. Butt Weld‡ Black %	2 in. Butt Weld‡ Galv. %	2½ to 3 in. Butt Weld‡ Black %	2½ to 3 in. Butt Weld‡ Galv. %	3½ to 4 in. Butt Weld‡ Black %	3½ to 4 in. Butt Weld‡ Galv. %	4½ to 6 in. Butt Weld‡ Black %	4½ to 6 in. Butt Weld‡ Galv. %	Lap Weld‡ Black %	Lap Weld‡ Galv. %	Continuous Seamless
Lorain, Ohio																			+14.00	+16.00		
Albquippa, Pa.																			+14.00	+16.00		
Sparrows Pt., Md.																			+14.00	+16.00		
Benwood, W. Va.																			+14.00	+16.00		
Youngstown, O.																			+14.00	+16.00		
Indiana Harbor, Ind.																			+14.00	+16.00		
Sharon, Pa.																			+13.00	+15.00		
Wheatland, Pa.																			+13.00	+15.00		
Elsa, Pa.																			+13.00	+15.00		
Fontana, Calif.																			+7.75‡	+9.75‡		
Gary, Ind.																			+7.00	+9.00		
Mill	13.75	+3.50	13.75	+3.50	13.75	+3.50	13.75	+3.50	13.75	+3.50	13.75	+3.50	13.75	+3.50	13.75	+3.50	13.75	+3.50	0.75	+10.00		
Lorain, Ohio	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....				
Albquippa, Pa.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....				
Sparrows Pt., Md.	17.38	+1.50	17.38	+1.50	17.38	+1.50	17.38	+1.50	17.38	+1.50	17.38	+1.50	17.38	+1.50	17.38	+1.50	17.38	+1.50				

* Threaded and coupled. ‡ to 1 ¼ and 6 in. wald.

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.("based on approx. $200 per net ton): Butt Weld ⅛ in., 8½¢; ¼ in., 9¢; ⅜ in., 9¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 78½¢. Lap Weld 3½ in., 92¢; 4 in., $1.39; 5 in., $1.49; 6 in., $1.92. continuous weld same as lap weld prices. Add freight, 3% transport tax for destination price. Production discontinued November 1957.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 68.54, galv., + 98.77; 1¼ in. black, + 68.54, galv. + 98.22; 1½ in. black, + 61.76 galv. + 91.22; Lap Weld —2½ in. to 3 in. black + 67.98 galv. + 98.77; 4½ in. to 6 in. black + 84.74 galv. + 90.69 Add freight rates plus 3% transportation tax to get destination price.

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, July 21; Next, Aug. 18.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, July 28; Next, Aug. 25.
- Wage Rates, Building Board, Lath, Insulation: Last, July 28; Next, Sept. 1.
- Cement, Aggregate, Ready Mixed Concrete, Asphalt: Last, Aug. 4; Next, Sept. 8

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 13 Connecticut

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 8/2,

Dravo Co., Neville Island, Pittsburgh 25, Pa., LB $7,197,555 est. $7,957,113, substructure, bridge over Taunton River, Interstate Rte. 195,1-195-3 (21)11 Contr. 11, Fall River and Somerset. CD 7/27.

BUILDINGS—LB & CA

▲† **Davison Constr. Co., Inc.**, 1306-A Elm St., Manchester, N. H., CA $2,886,000, 177 units Capehart HOUSING, Topsham Air Force Station, IFB 17-612-60-2, TOPSHAM, ME. Base Procurement Office, Topsham Air Force Station, Brunswick, Me. Bids July 12. CD 7/14, under LB.

▲† **Beacon Constr. Co.**, 102 Hano St., Allston, Mass. and **John A. Volpe Constr. Co.**, 54 Eastern Ave., Malden, Mass. CA $18,857,030, est. $19,417,087, Capehart HOUSING, Fort Devens. ENG-19-016-60-39B, AYER, MASS. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids May 24. CD 5/27, under LB.

▲ **John A. Volpe Constr. Co.**, 54 Eastern Ave., Malden, Mass. CA $2,000,000, HOSPITAL addn., NORWOOD, MASS., Norwood Hospital Bd. Trustees, 729 Washington St., Norwood, Mass. Bids June 8, awarded July 26, CD 6/10, under LB.

▲ **H Wales Lines Co.**, 134 State St., Meriden, Conn., CA Est. $3,000,000, 250,000 sq. ft. PLANT addn., CHESHIRE, CONN. Waterbury Farrel Foundry & Machine Co., 452 Bank St., Cheshire, Conn. Westcott & Mapes Inc., 109 Church St., New Haven, engr.-archt.

▲ **Fabrizio & Martin, Inc.**, 1082 Post Rd., Darien, Conn., CA $2,294,200, JUNIOR HIGH SCHOOL, Forbes St., EAST HARTFORD, CONN. Town, School Bldg. Comn., 740 Main St., East Hartford, Conn. Bids June 2, awarded July 28. CD 6/9, under LB.

▲ **Barber & Stevens, Inc.**, 36 Woodland St., Hartford, Conn., Owner Builds, $2,000,000, 200 HOUSES, Montville Manor Homes, Old Colchester Rd., MONTVILLE, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 25 New York

BUILDINGS—BA

▲ **N. Y., New York**—SCHOOL—BA 8/18—Supt. Design, Constr. and Physical Plant, Bureau Constr., 4th Fl., 42-15 Crescent St., Long Island City, Zone 1, general contract plumbing and drainage, heating and fixtures P.S. 84, W. 91 and W. 92 Sts., Central Park West, Manhattan Boro. Plans deposit $25 general, $10 each mechanical trades. Extended date. CD 7/5.

▲ **N. Y., Massapequa**—SCHOOL—BA 8/29—Bd. Educ., Union Free School Dist. 23, Alfred G. Berner Junior High School, Carmens Rd., Sunrise Hy. and Merrick Rd. $5,545,000. George J. Dippel, 187 Brooklyn Ave., archt. CD 1/20.

▲† **N. J., Fort Dix**—HOUSING—BA 8/30—U. S. Eng., 111 E. 16th St., New York 3, N. Y., 200 unit Capehart Housing Proj. No. 2, ENG-30-075-61-1, $3,000,000. CD 5/18/59.

▲ **N. J., Totowa**—PLANT—Bids Asked—Yardley of London, 600 Palisade Ave., Union City, plant, off Union Blvd. $2,500,000. Edward D. Stone, 130 E. 64 St., New York, N. Y., archt. Engineers, Inc., 487 Orange St., Newark, N. J., engr. CD 5/30.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany,

N. Y.—**Berlanti Constr. Co., Inc.** and **Zazzarino Constr. Co., Inc.**, 15 Oakland Ave., Harrison, N. Y., CA $10,337,681, 8½ in. rein.-con. slab roadway, 0.78 mi. c. conc. pavt. 0.07 mi. b. conc. 1.17 mi. c. conc. pavt., 0.56 mi., incl. struct. steel via 57 span total 4,118 ft. welded girder and W.F. beam 4 sp. 406.5 ft. Int. Rte. connection 516 and 517 Bruckner Expressway (Sect. 1-Contr. 3) Lafayette Ave.-Lowell St., Rte. 278, FIBE 60-1, Proj. I-278-1(48), Bronx Co.;

N. Y.—**Theodore Zoli Constr. Co.**, P.O. Box 336, Torrington, Conn., CA $994,433, b. conc. Type A, 5.4 mi. Duane Center-Mountain Pond, SH 9007, Rte. 30, R.C. 60-104, Franklin Co.;

N. Y.—**Serafini Constr. Co., Inc.**, P.O. Box 265, Binghamton, N. Y., CA $936,893, double surf. treat. pavt. 7.05 mi., misc. work 0.05 mi. Naples-Hunts Hollow-Honeoye, Pt. 5, C.R. 36, FASS 60-7, Proj. No. S-475(1), Livingston and Ontario Counties;

N. Y.—**Putnam-Hawley Constr. Co., Inc.**, Potsdam, N. Y., CA $885,751, b. conc. Type 1A, 4.98 mi. Morristown-Hammond, Pt. 2, SH 907A, Rte. 37, FARC 60-83, Proj. No. F-650(10), St. Lawrence Co. Bids June 23. Grand total $13,154,758. CD 6/27, under LB.

▲ **PENNSYLVANIA**—Pa. Hy. Dpt., 506 North Office Bldg., Harrisburg, Bids opened 7/29,

Pa.—**Latrobe Rd. Constr., Inc.**, Marcia St., Box 150, Latrobe, Pa., LB $3,193,192, (11 bidders), 19,868 ft. divided rein.-con. hy., 6 bridges Interstate Rte. 70, L.R. 798(2) A Sec. Erie-W. Va. Expressway, Buffalo, N. Franklin and S. Franklin Twps., Washington Co.;

Pa.—**H. J. Williams Co., Inc.**, 150 S. Summer St., York, Pa., LB $247,766, (5 bidders), 6,997 ft. crushed aggreg. base, bit. surf. hy., one alt. superstructure bridge, L.R. 66034(1), Warrington and Dover Twps., York Twp.;

Pa.—**L. R. Owen Co.**, Richland Twp., R.D. 2, Johnstown, Pa., LB $110,883, (3 bidders), resurf., bit. surf. 19,296 ft. T.R. 219, E. Taylor and Jackson Twps., Cambria Co.;

Pa.—**J. Robert Bazley, Inc.**, P.O. Box 298, Pottsville, Pa., LB $3,204,015, (10 bidders), 9,794 ft. divided rein.-con. hy., three steel I-beam bridges, T.R. 45-29, Lehigh, Lower Towamensing and E. Penn. Twps., Palmerton Boro, Northampton and Carbon Counties;

Pa.—**J. H. Beers Constr. Co.**, Bangor, Pa., LB $231,827, (6 bidders), 10,296 ft. crushed aggreg. base, bit. surf. hy., one bridge, L.R. 48035(4), 48036(4), Bangor and Roseto Boros, Washington Twp., Northampton Co.;

Pa.—**James D. Morrissey, Inc.**, 9119 Frankford Ave., Phil. 14, Pa., LB $3,298,672, (11 bidders), 19,060 ft. divided rein.-con. hy., eight bridges Interstate Rte. 180, L.R. 1011(3) Sec. of Reading-Turnpike-Spur Robeson and Cumru Twps., Berks Co., CD 4/14;

Pa.—**Hempt Bros., Inc.**, R.D. 1, Camp Hill, Pa., LB $1,608,769, (6 bidders), 13,709 ft. rein.-con. hy., four bridges, L.R. 774(1), 767(3), a section of West Shore Bypass, Hampden Twp., Cumberland Co. CD 7/11.

▲ **PENNSYLVANIA** — Pa. Hy. Dpt., 506 North Office Bldg., Harrisburg, Bids opened 7/29.

Pa.—**Pittsburgh-Des Moines Steel Co.**, Neville Island, Pittsburgh 25, Pa., LB $3,327,693, (4 bidders), Monongahela River bridge superstructure, L.R. 113 (19D-20D), W. Brownsville and Brownsville Boros, Washington and Fayette Counties;

Pa.—**David Goldberg & Sons**, Box 1711, Pennsylvania Ave., Uniontown, Pa., LB $297,904, (6 bidders), four rein.-con. piers, two rein.-con. abutments for Monongahela River bridge, L.R. 113 (19D-20C), W. Brownsville and Brownsville Boros, Washington and Fayette Counties. CD 7/14.

A. J. Feraco Constr. Co., 7801 Roosevelt Blvd., Phila. 15, Pa., CA $254,594, Bid No. 2586, reconstruction sewer and relay water mains in Sergeant St. from Amber to Coral Sts., in Coral St. from Sergeant to York Sts., PHILA., PA. City of Phila., Procurement Dpt., 302 City Hall Annex, Phila. 7, Pa.;

Frank Mark Co., Castor and Wingohocking Sts., Phila. 24, Pa., CA $132,139, Bid No. 2587, reconstruction sewer and relay water mains in Parrish St. from 8 ft. east of Randolph St. to 52 ft. west of Franklin St., (PHILA., PA.). CD 7/8.

▲ **Case Constr. Co.**, Mount Airy, Md., CA $3,247,920, Jones Falls Expressway from Union Ave. Bridge to Cold Spring Lane Interchange, BALTIMORE, MD. City Bureau Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids June 29, awarded July 27. CD 7/1, under LB.

BUILDINGS—LB & CA

▲ **William E. Bouley Co., Inc.**, 265 Geneses St., Auburn, N. Y., CA $1,818,000, WOMEN'S DORMITORY, ITHACA, N. Y. Cornell University, Ithaca, N. Y. Von Storch & Burkavage, Waverly, Pa., and Beardsley & Beardsley, 364 South St., Auburn, N. Y., archts. (Correction—architects names) CD 6/23, under CA.

▲ **Harry & Sidney W. Waxman**, 17 Neptune Ave., Brooklyn, N. Y., Owner Builds, $50,000,000, 2,000 HOUSES 123 Acres Rosedale Village, 152 Ave., Brockville Blvd., 149 Ave., 259 St. and Nassau County Line, ROSEDALE (Sta. JAMAICA), N. Y.

▲ **First National Realty & Constr. Corp.**, 630 3 Ave., New York 17, N. Y., Owner Builds, $4,500,000, 18 story, 16,800 sq. ft. 195 unit APARTMENT and 10,600 sq. ft. STORE, NE cor. 2 Ave., E. 69 St.; $3,500,000, 12 story, 17,500 sq. ft. 144 unit APARTMENT north side E. 74 St. between 2 and 3 Aves.; $5,000,000, 19 story, 241 unit APARTMENT, 96 Fifth Ave. SW cor. E. 15 St.; $2,500,000, 16 story 208 unit Mayfair South APARTMENT, S. 34 St. between E. 1 and E. 2 Aves., NEW YORK, N. Y. Leo Stillman, 332 E. 149 St., New York 51, N. Y. Grand total $15,500,000.

▲† **Oman-Farnsworth-Wright**, 625 Madison Ave., New York, N. Y., CA $1,713,000, 135 units FAMILY HOUSING, Lajes Field, ENG-30-347-60061, AZORES. U. S. Eng., 346 Broadway, New York 13, N. Y., U.S.A. Bids June 22. CD 5/19.

▲ **First National Realty & Constr. Corp.**, 630 3rd Ave., New York 17, N. Y., Owner Builds, $5,000,000, 238 HOUSES, 185 acres, SMITHTOWN, N. Y. Stanley Klein, 83-31 161 St., Jamaica, N. Y., archt.

▲ **Wilaka Constr. Co. Inc.**, 11 E. 44 St., New York 17, N. Y., LB $4,868,000, (6 bidders), general contract West Brighton HOUSES, Proj. No. NY-5-40, Section 1, Henderson Ave., Broadway, Castleton Ave. and Alaska St., Richmond Boro, WEST NEW BRIGHTON, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Aug. 2, CD 7/11;

H. Sand & Co., 11 Park Pl., New York 7, N. Y., LB $522,600, (3 bidders), heating and ventilating for West Brighton Houses (West New Brighton, N. Y.);

Herman H. Schwartz, Inc., 97-11 Sutphin Blvd., Jamaica 35, N. Y., LB $508,470, (4 bidders), electrical work for West Brighton Houses (West New Brighton, N. Y.);

Endres Plumbing Corp., 31-65 29 St., Long Island City 6, N. Y. LB $580,000, plumbing for West Brighton Houses (West New Brighton, N. Y.).

▲ **Brown & Matthews**, 404 4 Ave., New York, N. Y., CA Est. $2,000,000, design and construct FACTORY, Rte. 1 and N. J. Turnpike adjoining Penn. R.R., EDISON, N. J. National Can Corp., 52-08 Grand Ave., Maspeth, N. Y. CD 4/5.

▲ **L & G Builders**, 133 Engle St., Englewood, N. J., Owner Builds, $1,750,000, 75 HOUSES, Overbrook Rd., NORTHVALE, N. J. Arthur Davis, 133 Engle St., Englewood, N. J., archt.

▲ **Panitz Bros.**, 1606 Kelly Ave., Baltimore 9, Md., Owner Builds, $35,000,000, Joppatowne, new SATELLITE COMMUNITY on Rte. 40 East near Baltimore/Harford County line along Little Gunpowder River, 3,000 houses, churches, schools, parks, marina, shopping center, streets, water and sewerage sys., BALTIMORE, MD. Fisher, Nes, Campbell & Assoc., 2120 N. Charles, Baltimore, Md., archts. Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore 2, Md., engrs. Completion Target 1961-1962.

▲† **Piracci Constr. Co., Inc.**, 2552 Woodbrook Ave., Baltimore, Md., LB $3,789,000, Base Bid, (13 bidders), OLD AGE and SURVIVORS INSURANCE ANNEX, BALTIMORE, MD. General Service Admin., Rm. 7122, Regional Office Bldg., 7 and D Sts. S.W., Wash. 25, D. C. Bids Aug. 3. CD 7/6.

▲ **Malan Constr. Co.**, 2 Park Ave., New York, N. Y. CA, Buick, Oldsmobile, Pontiac ASSEMBLY PLANT, WILMINGTON, DEL. General Motors Corp., Boxwood Rd. and Woodcrest St., Wilmington, Del. Argonaut Realty Div., Argonaut Bldg., Detroit, Mich., engrs.

Continued on page 80

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

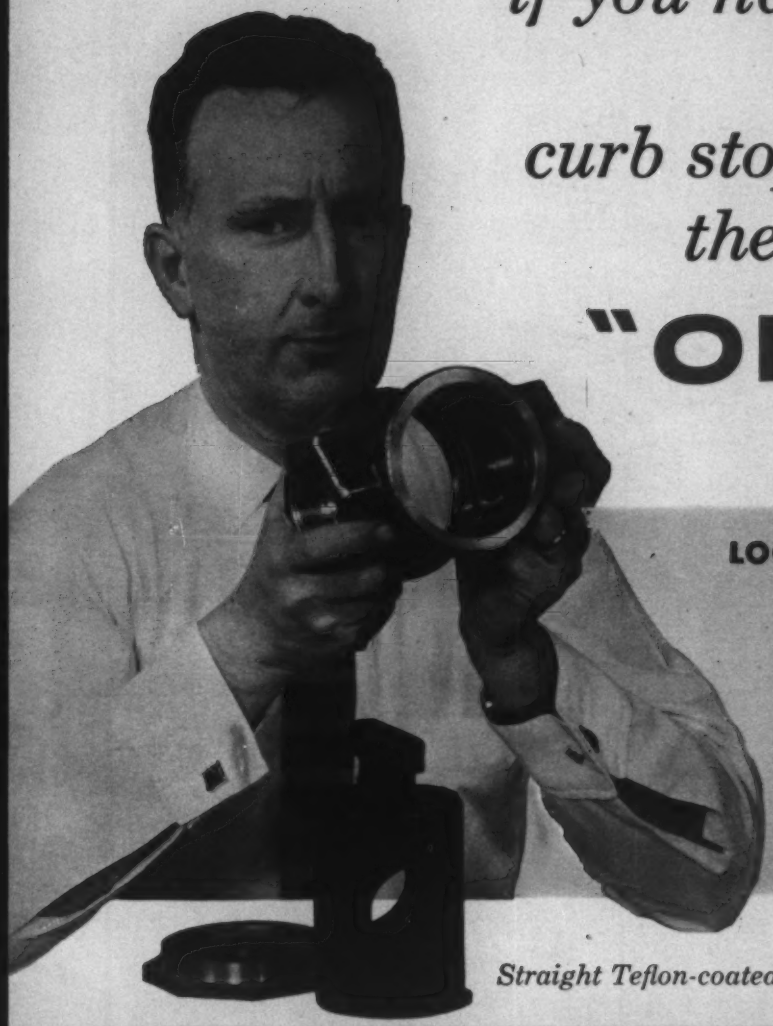
CONTRACTS AWARDED: CA Except awards to low bidders previously reported n low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.



if you have problems with "sticking" curb stops, look into the new Mueller®

"ORISEAL®"

LOOK INTO THE IDEAL CURB VALVE

- *Investigate the easy turning design features*
- *Investigate the long-life operating dependability*
- *Investigate the many reasons behind its amazing performance record.*

Straight Teflon-coated plug . . . "O" rings in the body

■ Twelve years of intensive field testing have proved the big advantages in the Oriseal's simple, sturdy design. After 25,000 to 45,000 cycling operations, this curb valve remained leakproof, remained easy to turn and had required no periodic service maintenance of any kind.

See your Mueller representative or write today for complete Oriseal test information. If you have experienced "sticking" curb stops, test an Oriseal Curb Valve in your water system and prove its many operating advantages.

MUELLER CO. Since 1857 SERVING the Water and Gas Industries QUALITY

MUELLER CO., DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario.

ONLY LOADER WITH 5-WAY

Allis-Chalmers tractor loaders offer extended service life, far less down-time by thoroughly cleaning all air and filtering all hydraulic oil.

Unmatched filtering protection—that's what you get in all Allis-Chalmers tractor loader models.

Air is double filtered by:

1. air breather
2. air filter

Hydraulic oil is cleaned by:

3. full-flow micronic filter
4. conical screen
5. magnetic filter

This 5-way filtering protection brings peak hydraulic operating efficiency . . . extended service life.

move ahead with

HYDRAULIC PROTECTION

Complete filtering protection is just another way Allis-Chalmers tractor loaders set the pace in the loader field. They also feature: *pin-connected axles* that eliminate shifting and rolling under load; *exclusive single-lever control* of all speed and direction; *safe, well-located dump cylinders* that are up and away from dirt; *extra reach* for easier dumping and *added stability* for moving big loads without tipping or spilling.

Your Allis-Chalmers dealer can give you facts on all 5 tractor loader models—ranging in capacity from 1 to 5 cu yd, in power from 76.5 to 130 horsepower. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

... power for a growing world

New book tells

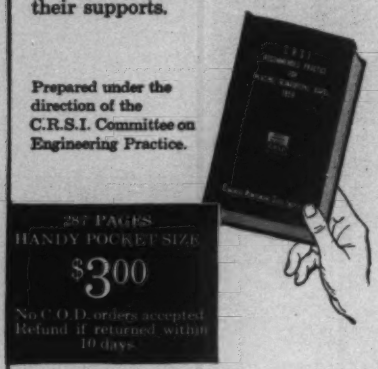
Where . . .

How . . .

to place reinforcing bars

Written for bar setters and inspectors . . . as a manual for apprentice courses . . . and a reference for specification writers, architects, engineers, and detailers.

Contains complete specifications and instructions for placing reinforcing bars, welded wire fabric, and their supports.



Prepared under the direction of the C.R.S.I. Committee on Engineering Practice.

287 PAGES
HANDY POCKET SIZE
$3.00
No C.O.D. orders accepted
Refund if returned within 10 days

Concrete Reinforcing Steel Institute
38 South Dearborn Street (Dept. L)
Chicago 3, Illinois

WATCH WATCO

104' Single Tee — Maule Ind., Miami

STEEL FORMS

Nationwide acceptance of Watco steel forms for the precast, prestress industry is gratifying.

We would like to fill your particular form requirements whether standard or custom units.

Write for illustrated folder on newest Single Tee forms

watco

Division of Plant City Steel Corporation
P.O. Box 1308, Plant City, Florida

Continued from page 76

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 16, 23 North Carolina

HEAVY CONSTRUCTION—LB & CA

▲ **Merritt-Chapman & Scott Corp.**, 261 Madison Ave., New York, N. Y., **Tidewater Constr. Corp.**, 538 Front St., Norfolk, Va., **Peter Kiewit & Sons**, 1024 Omaha National Bank Bldg., Omaha, Neb., and **Raymond International, Inc.**, 140 Cedar St., New York, N. Y., CA $116,535,462, Chesapeake Bay Bridge-Tunnel Proj. between Little Creek and Kiptopeake, VIRGINIA: Chesapeake Bay Ferry Dist. Comn., Box 120, Norfolk, Va. CD 7/20/59, under CA;
American Bridge Div., United States Steel Corp., 821 Madison Ave. NE., Roanoke, Va., CA $2,033,338, steel Chesapeake Bay Bridge (Virginia).

▲ **VIRGINIA**—State Dpt. Hys., 1221 E. Broad St., Richmond, Bids opened 7/29,

Va.—**J. O. & C. M. Stuart, Inc.**, 3121 South St., NW, Wash., D. C., LB $2,447,104, grading, drainage 6.86 mi. Inter. 66, 0.39 mi., west of Centreville to 0.8 mi. east of US 50, bypassing Centreville and Fairfax, Fairfax Co.; LB $965,597, grading, drainage 1.9 mi. Inter. 66, 0.8 mi. east of US 50 to 0.57 mi. east of Rte. 123, Fairfax Co.;

Va.—**Laramore Constr. Co.**, P. O. Box 1656, Danville, Va., LB $505,933, relocation, reconstr., 1.67 mi., US 58, east corporate line of Martinsville; east, Henry Co.;

Va.—**V. N. Green & Co., Inc.**, 1640 Fourth Ave., Charleston, W. Va., LB $1,538,911, grading, drainage, first section Marion Bypass, Inter. 81, 2.44 mi. west of Marion to 0.45 mi., west of Rte. 16, Smyth Co.;

Va.—**Adams Constr. Co.**, 2725 Roanoke Ave., Roanoke, Va., LB $653,921, paving, etc. 5.82 mi., US 360, Va. R. R. overpass at Meherrin to US 15, Charlotte and Prince Edward Counties;

Va.—**Bowers Constr. Co.**, 805 W. South St., Raleigh, N. C., LB $832,815, five bridges at interchange at Telegraph Rd. (Rte. 241), Inter. 413 (Capital Beltway), Fairfax Co. CD 7/5.

▲ **FLORIDA**—State Rd. Dpt., Tallahasee, Bids opened 7/26,

Fla.—**Industrial Contg. Co.**, P.O. Box 2307, Fort Lauderdale, Fla., LB $2,587,460, 4 lane concrete deck bridge, etc., over Caloosahatchee River, Fort Meyers, SP 12010-3504, Rte. 45 (US 41), Lee Co., CD 6/30.

Fla.—**Scott Constr. Co.**, P.O. Box 71, Thomasville, Ga., LB $521,882, (19 bidders), 5 grade separation bridges, Rte. 93, Rte. 6 to Georgia State Line, FAIP-I-75-3(9)199, SP 32100-3410, Hamilton St. CD 7/13.

▲ **MISSISSIPPI**—State Hy. Dpt., Jackson,

Miss.—**T. L. James & Co., Inc.**, James Bldg., Ruston, La., CA $2,582,251, est. $3,160,000, incid. grading, drainage, culverts, topping base, b. conc. 12.466 mi. Interstate Hy. 55 between Tallahatchie and Panola-Tate Co. Line, Proj. I-55-4 (17) 245; Panola Co.; CA $1,386,289 est. $1,650,000, incid. drainage, culverts, c. conc. pavement 4.9 mi. Interstate Hy. 55 between Batesville and Sardis, Proj. I-55-4(16) 240, Panola Co.;

Miss.—**John H. Moon & Sons**, Ridgeland, Miss., CA $176,973, est. $190,000, grade, drainage, culverts one bridge 0.473 mi. US and Interstate Hy. 51 & 55, Daniel Lake Loop Road, Proj. I-55-2(25)89, Hinds Co.;

Miss.—**O. J. Stanton & Co.**, Box 731, Greenwood, Miss., CA $123,837, est. $125,000, grade, drainage, culverts, temporary gravel surf. course 3.475 mi. Hy. 389 between Starkville and Pheba. Proj. S-0739(4)A, Oktibbeha Co.;

Miss.—**J. C. McBeath**, 1000 Miss. St., Jackson, Miss., CA $1,156,665, est. $1,510,000, grade, drainage, culverts, box bridges 11.507 mi., Interstate Hy. 59 between Pearl River-Lamar Co. Line and Lamar-Forest Co. Line. Proj. I-092-1(11) (old)/I-59-1(1041 (new) Cont. L, Lamar Co;

Miss.—**National Advertising Co.**, Bedford Park, Ill., CA $126,613, est. $150,000, signs 5.915 mi. Interstate Hy. through Laurel. Proj. I-59-2(14)92, Contr. III, Jones Co.;

Miss.—**O'Neal Electric Co., Inc.**, 2607 17th St., Gulfport, Miss., CA $182,595, est. $250,000 highway lighting 5.915 mi. Interstate Hy. 59 through Laurel, Proj. I-59-2(14)92, Contr. I, Jones Co. Grand total $5,735,223. Bids July 26, awarded July 26. CD 7/15.

▲† **Sabine Dredging Co. & Constr. Co., Inc.**, 708 Marian Anderson St., Port Arthur, Tex., and **T. L. James & Co.**, P. O. Box 8, Kenner, La., LB $1,758,886, (7 bidders), 14,112 cu. yd. Chico Pass Channel enlargement, St. Martin and Iberia Parishes, Inv. 60-231, LOUISIANA. U. S. Eng., P. O. Box 267, New Orleans, La. Bids July 20. CD 6/21.

▲ **LOUISIANA**—State Dpt. Hys., Room 426, Headquarters Admin. Bldg., Baton Rouge, Bids opened 7/27,

W. R. Aldrich & Co., 2493 Baywood Ave., P. O. Box 1751, Baton Rouge, La., LB $3,426,431, (2 bidders), grading, drainage, struc. fixed high level bridges (composite welded spans), c. conc. pavement approaches, etc., 3.463 mi. West Pearl River Bridge & approaches, Rte. I-59, SP 453-01-02, FAP I-59-1(4)2, St. Tammany Parish. CD 7/14.

▲ **KENTUCKY**—State Dpt. Hys., Frankfort, Bids opened 7/29,

Ky.—**Hinkle Contg. Co.**, Box 147, Paris, Ky., LB $2,096,752 (6 bidders), b. conc. surf. 8.396 mi. Lexington-Cattletsburg, I-64-5(7)100, Clark and Montgomery Counties, CD 7/11;

Ky.—**R. R. Dawson Bridge Co.**, Bloomfield, Ky., LB $201,962, (4 bidders), c. conc. 0.167 mi., Bridge St., Paintsville. S 581(1), Johnson Co.;

Ky.—**E. P. Monahan**, Rte. 5, Shelbyville, Ky., LB $235,241, (3 bidders), bit. surf. 9.62 mi. IT Gr. 3 (60), Hart and Larue Counties;

Ky.—**Cantrill Constr. Co.**, 700 N. Broadway, Lexington, Ky., LB $261,848, (2 bidders), bit. surf. 7.866 mi. IT Gr. 6 (6), Breathitt Co.; LB $219,692, (2 bidders), bit. surf. 7.1 mi. Manchester-Booneville, SP 26-25, Clay Co. CD 7/14.

BUILDINGS—LB & CA

▲† **F. N. Thompson Constr. Co.**, P. O. Box 1474, Charlotte, N. C. and **McDevitt & Street Constr. Co.**, 145 Remount St., Charlotte, N. C., CA $5,378,800, CAPEHART HOUSING, Inv. 11-626-60-11, CHARLESTON, S. C. Air Force Military Air Transport Service, Scott Air Force Base, Ill. Bids July 6. CD 6/13, under LB.

▲ **Jack O'Donnel**, 714 W. Conway Dr., N.W., Atlanta, Ga., Separate Contracts, Est. $3,000,000, 255,000 sq. ft. 269 units, Piedmont Valley APARTMENTS, ATLANTA, GA. Albert Ordway, 36 Highland Dr., N.E., Altanta, Ga., archt.

▲ **Springhill Development Co.**, 655 Webster St., Decatur, Ga., Day Labor, $2,100,000, 140 RESIDENCES, SMYRNA, GA.

▲ **Frank J. Rooney, Inc.**, 712 SE 17th St., Fort Lauderdale, Fla., CA $2,887,435, COURTHOUSE addn., FORT LAUDERDALE, FLA. Bd. Comrs. Broward Co., Courthouse, Fort Lauderdale, Fla. Bids July 19, awarded July 26. CD 7/26, under LB.

▲ **Cal Kovens**, 1770 Bay Rd., Miami Beach, Fla., CA Est. $3,000,000, 250,000 sq. ft. SHOPPING CENTER, FORT PIERCE, FLA. South Plaza, Inc., 1770 Bay Rd., Miami Beach, Fla. Charles F. McKirahan, 2400 E. Oakland Park Blvd., Fort Lauderdale, Fla., archt.

▲ **The Auchter Co.**, P.O. Box 1193, Jacksonville, Fla., CA $4,529,950, MUNICIPAL AUDITORIUM, JACKSONVILLE, FLA. City, City Hall, Jacksonville, Fla. Bids July 19, CD 7/27, under LB.

▲† **Kesk, Inc.**, P.O. Box 20, New Orleans, La., CA $3,934,937, 240 unit CAPEHART HOUSING, Keesler Air Force Base, BILOXI, MISS. Base Procurement Office, Keesler Air Force Base, Biloxi, Miss. Bids June 23, awarded Aug. 3. CD 7/29, under LB.

▲ **Turner Constr. Co.**, 105 W. Adams St., Chicago, Ill., CA Est. $4,100,000, 29 story, 297,225 sq. ft. "800" APARTMENT, 3 level, 200 car PARKING GARAGE, 4th and York Sts., LOUISVILLE, KY. Drybrough Enterprises, 800 S. 4 St., Louisville 3, Ky. Arrasmith & Tyler, 501 Park Ave., Louisville 8, Ky., archts. Loewenberg & Loewenberg, 120 S. LaSalle St., Chicago, Ill., assoc. archts. CD 9/17/59.

▲ **Thompson & Street Co.**, P.O. Box 1474, Charlotte, N. C., LB $1,938,400, 192 unit HOUSING Proj. Tenn 4-5, CHATTANOOGA, TENN. Chattanooga Housing Auth., 1914 McCallie Ave., Chattanooga, Tenn. Bids July 28. CD 7/6.

▲ **J. A. Jones Constr. Co.**, 1805 Hayes St., Nashville, Tenn., LB $1,925,000, (6 bidders), DEPARTMENT STORE, KNOXVILLE, TENN. Miller's Department Store, Knoxville, Tenn.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 16, 23 Ohio August 17, 19 Michigan
August 23 Wisconsin

▲ **Ill., Chicago**—BA 8/31—Dpt Purchases, City Hall, Zone 2, No. 80.75-60-40, Southwest Incinerator, 39th and Rockwell Sts. $5,500,000. CD 11/5.

▲ **Ill., Chicago**—TERMINALS—BA 9/7—City Dpt. Purchase, City Hall, Zone 2, two terminal bldgs., Chicago O'Hare International Airport, $15,000,000. CD 12/4/58.

BUILDINGS—SLC

▲ **Illinois**—STEAM GENERATING EQUIPMENT—Southern Illinois Power Cooperative, Inc., Steeleville, soon lets contract steam generating equipment for 99,000 kw. power plant South Fork Saline River near Marion. Burns & McDonnell Engineering Co., 4600 E. 63rd St., Trafficway and P.O. Box 173, Kansas City 41, Mo., engr. CD 7/27.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., State Depts. Bldgs., Columbus Zone 15, Bids opened 7/26,

O.—**V. N. Holderman & Sons Co.**, 890 Oakland Park Ave., Columbus, O., LB $4,037,043 est. $4,796,200 (12 bidders), Proj. 410, T 71, structures 14.783 mi. US Rte. 25-9.47,I-75-4(9)94, Shelby Co.;

O.—**Price Constr. Co.**, Fair Rd., P. O. Box 445, Norwalk, O., LB $325,404, est. $307,100, (3 bidders), Proj. 414, T 35 7.36 mi. US Rte. 20(17.56-24.66) (Village of Wakeman) Huron Co.;

O.—**Nelson T. Bahan**, 549 E. Court St., Urbana, O., LB $358,157, est. $416,400, (8 bidders), Proj. 415, Type T 35, structures 1.04 mi. US Rte. 42-(9.82) (14.27), Madison Co.;

O.—**Hinton Constr. Co.**, 638 N. Main St., Celina, O., LB $364,827, est. $431,900, (7 bidders) Proj. 416, T 35 on B 19 structures 1.855 mi., State Rte. 48-6.76, Miami Co.;

O.—**The Kelley & Meyer Co.**, 1211 Gibson St., Youngstown, O., LB $417,808, est. $421,500, (3 bidders), Proj. 446 T 35 10.05 mi. State Rte. 0.00, Ashtabula and Trumbill Counties. CD 7/18.

▲ **INDIANA**—State Hy. Dpt., State House Annex., Indianapolis, Bids opened 7/26,

Ind.—**Warrick & Warrick**, Sellersburg, Ind., LB $224,592, est. $208,054, (5 bidders), 4 cont. rein.-con. girder spans over Interst. Rte. 65, 3 cont. rein.-con. spans over Sandy Branch, Contr. 5037, Jackson Co.; LB $131,051, est. $147,527, (10 bidders), 4 cont., rein.-con. girder spans over Interstate 65, Contr. 5041, Bartholomew Co.;

Ind.—**Smith & Johnson, Inc.**, 1799 Kentucky Ave., P. O. Box 7738, Indianapolis 21, Ind., LB $265,948, est. $292,673, (5 bidders), 5 cont. rein.-con. girder spans over Fall Creek, Contr. 5000, Marion Co.;

Ind.—**George E. Detzel Co.**, 2303 Gilbert Ave., Cincinnati 6, O. and **Ohio Equipment & Supply Co.**, 1231 Draper St., Cincinnati, O., LB $1,880,478, est. $2,175,944, (13 bidders), 20 rein.-con. girder cont. steel beam spans over East Fork of White River, Interstate 65, 7 rein.-con. girder spans over East Fork White River Interstate 65, 7 rein.con. girder spans, over Overflow East Fork White River, Interstate 65, etc., Contr. 5049, Jackson Co. CD 7/11.

▲ **Commercial Light Co.**, 215 S. Morgan St., Chicago, Ill., CA $3,756,881, No. 70.64-60-2, street lighting, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids June 17, awarded July 26. CD 6/23, under LB.

BUILDINGS—LB & CA

▲ **Hunkin-Conkey Constr. Co.**, 1740 E. 12th St., Cleveland 14, O., CA $2,663,000, 295 unit low-rental HOUSING, Proj. OH 3-178, Wade Park Ave. between Ansel and Crawford Rds., CLEVELAND, O. Cleveland Metropolitan Housing Auth., 1325 W. 28th St., Cleveland 13, O. Bids June 28, awarded July 26. CD 7/8, under LB.

▲ **The M. W. Kellogg Co.**, 711 3rd Ave., New York, N. Y., CA $8,000,000, design and construct NAPTHALENE PLANT, TOLEDO, O. Sun Oil Co., 1608 Walnut St., Phila., Pa. CD 6/17.

▲ **Schiess Constr. Co.**, 703 Rogers Ave., Downers Grove, Ill., LB $1,800,000, 2 story, T-shaped, 52 x 144 x 52 x 133 ft. HOSPITAL addn., alterations, NAPERVILLE, ILL. Edward Hospital, S. Washington St., Naperville, Ill. Bids July 15. CD 7/6.

▲ **Spearo Constr. Co.**, 7607 W. Armitage Ave., Elmwood Park, Ill., CA $2,000,000, 3 story, 150 bed HOSPITAL, 365 E. North Ave., NORTHLAKE, ILL. Dr. Giulio Bruni & Assocs., 4420 St. Charles Rd., Bellwood, Ill. Frank Louis Glick, 3936 N. Central Ave., Chicago, Ill., archt. Awarded July 22.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS

August 19 Minnesota — August 25 Missouri

BUILDINGS—BA

▲ **Tex., Houston**—SCHOOL—BA 8/23—Houston Ind. School Dist., 1300 Capitol Ave., Junior High School, San Felipe Rd. and Bering Dr. $2,000,000. Plans deposit (architectural) $100, (mechanical) $50. Extended date. Staub, Rather & Howze, 2814 Virginia St., archts. Francis J. Niven & Associates, 2124 Welch St., Reymond L. Jenkins, 4316 Blossom St., engrs. CD 7/29.

▲ **Tex., Dallas**—HOSPITAL—BA 8/25—St. Paul's Hospital, 3121 Bryan St. (selected list bidders), 10 story, 412,000 sq. ft., concrete frame, air-conditioned hospital, $10,000,000. Roscoe DeWitt, 2025 Cedar Springs Rd., archt. Thompson & Abney, 2023 Cedar Springs Rd. and Leo L. Landauer & Associates, 4801 Lemmon Ave., all Dallas, engrs. CD 4/19.

▲† **Kan., Fort Riley**—HOUSING—BA 9/6—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., 867 Capehart Housing units, ENG-23-028-61-5. $13,000,000. Plans deposit $10. CD 4/25, under LB.

BUILDINGS—LB & CA

▲ **Terra Development Corp.**, 116 N. Central Ave., Clayton 5, Mo., Owner Builds, $5,000,000, 710 RESIDENCES, Perremont Subdivision Hy. 141 south of Manchester Rd., ST. LOUIS COUNTY, MO.

▲ **Fairworth Homes, Malcolm Culloch & Roy Davidson**, 2501 Cedar Springs Rd., Dallas, Tex., Owner Builds, $1,649,192, 85 DWELLINGS, DALLAS, TEX. CD 7/6,

▲ **Susquehanna Engineering Co. (Div. of Susquehanna-Western, Inc.)**, c/o 777 Grant St., Denver, Colo., CA Approx. $1,750,000, Contract No. 3, URANIUM ORE PROCESSING PLANT, near FALLS CITY, TEX. Susquehanna-Western, Inc., 777 Grant St., Denver, Colo. CD 1/15.

▲ **Felix A. Davis Constr. Corp.**, 1111 Rosalie St., Houston, Tex., CA $2,678,000, STORE, Port Arthur Superhighway, "Discount City, U.S.A.", Leonard's Stores, HOUSTON, TEX. Cadmah Realty Co., c/o 1111 Rosalie St., Houston, Tex. CD 7/27.

▲ **Felix A. Davis Constr. Corp.**, 1111 Rosalie St., Houston, Tex., CA $2,375,000, STORE, incl. 1,400 car parking space, HOUSTON, TEX. Cadmah Realty Co., 1111 Rosalie St., Houston, Tex. CD 7/29.

▲ **Johnson, Drake & Piper, Inc.**, 2244 W. Holcombe Blvd., Houston, Tex., CA $4,159,700, SENIOR HIGH SCHOOL, South Worthing area, Scott and Reed Rds.; SENIOR HIGH SCHOOL, Southwest Bellaire area; Richmond, Hillcroft, Beverly Drs., HOUSTON, TEX. Houston Ind. School Dist., 1300 Capitol Ave., Houston, Tex. Bids July 21. CD 7/29, under LB.

▲ **Johnson, Drake & Piper, Inc. and H. A. Lott, Inc.**, 2244 W. Holcombe Blvd., Houston, Tex. (jointly), LB $2,767,000, est. $2,750,000, (5 bidders), 11 story, stgel, glass WORLD TRADE CENTER, HOUSTON, TEX. Port Comn. (Navigation Dist.), 1519 Capitol Ave., Houston, Tex. Bids July 14. CD 6/15.

▲ **Temple Lumber Co.**, 4807 Kirby Drive, Houston, Tex., Owner Builds, $1,808,665, 108 masonry DWELLINGS, HOUSTON, TEX. CD 6/9.

▲ **Henry C. Beck Co.**, 607 First National Bank Bld., Dallas 2, Tex., CA $2,000,000, est. $1,000,000, 7 story OFFICE addn., SAN ANTONIO, TEX. United Services Automobile Assn., Hildebrand and Broadway, San Antonio, Tex. CD 8/2.

▲ **Manhattan Constr. Co.**, 1811 Crawford St., Houston, Tex., CA approx $3,125,000, 8 story MOTOR-HOTEL, HOUSTON, TEX. Syndicate, Donald McGregor, trustee, 201 Main St., Houston, Tex. CD 7/29.

▲ **Southwestern Constr. Co.**, P.O. Box 1204, Houston, Tex., LB $4,825,000, est. $4,000,000, Jewish MEDICAL RESEARCH CENTER, and related bldgs., etc., HOUSTON, TEX. Baylor University College of Medicine, 1200 M. D. Anderson Bldg., Houston, Tex. Bids July 20. CD 7/8.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES

August 24 California — August 30 Washington

STREETS AND ROADS

August 16 Idaho — August 19 Arizona
August 23 Washington — August 24, 31 California
September 1, 7 California

▲ **Utah, Bountiful**—BA 8/23—South Davis Co. Sewer Imprvt. Dist., 2022 S. Main, sanitary sewer collection sys. $2,000,000. Plans deposit $50. Nielsen, Reeves & Maxwell, 275 E. 4425 S., Washington Terrace, Utah, and Henington, Durham & Richardson, Colorado Springs, Colo., engrs.

▲ **California**—BA 8/31—State Dpt. Water Resources, 1120 N St., Sacramento, roadway and structures 14.7 mi. Oroville to West Branch of Feather River Western Pacific R.R. relocation, Butte Co., Feather River Proj., Spec. No. 60-8. $5,000,000. CD 5/6.

BUILDINGS—BA

▲ **Calif., Camp Irvin**—HOUSING—BA 9/8—U. S. Eng., 180 New Montgomery St., San Francisco, 140 unit Capehart Housing, ENG-04-203-61-30. Plans deposit $10. CD 7/18.

HEAVY CONSTRUCTION—LB & CA

▲ **WASHINGTON**—State Hy. Comn., Transportation Bldg., Olympia,

Wash.—**Puget Sound Bridge & Drydock Co.**, 2929 16th Ave. SW, Seattle, CA $3,099,996, grading, erosion control, cement concrete paving, fencing, constructing rein.-con. tunnel and two rein.-con. box girder bridges 0.657 mi. Primary State Hy. 1, Seattle Freeway, Lakeview Blvd., to Shelby St., Proj. FAP I-5-3(84)167;

Wash.—**J. Crick & Sons and Material Bros., Inc.**, Box 102, Yardley, Wash., CA $1,047,278, grading, surf. bit. surf. treatment, b. conc. paving, cement concrete paving, signing 6.4 mi., Primary State Hy. 3, Smythe Rd. to Hatch Rd., Proj. FAP F 037-2(8) Spokane Co. CD 7/29;

Wash.—**N. Fiorito Co., Inc.**, 814 W. 48th St., Seattle, Wash., CA $663,924, clearing, draining, grading, placing riprap, surf. bit. surf. treatment b. conc. paving 2.315 mi. Primary State Hy. 5, Mayfield vicinity, Lewis Co. Grand Total $4,811,198. CD 8/2.

BUILDINGS—LB & CA

▲ **Anderson-Westfall Co.**, 3427 NE Halsey St., Portland, Ore., CA $6,028,084, 21 story tower rising from 4 story base PORTLAND HILTON HOTEL, PORTLAND, ORE. Portland Hilton Hotel Corp., c/o Skidmore, Owings & Merrill, archts., 2040 SW Jefferson St., Portland, Ore. Bids July 22. CD 7/26, under LB.

▲ **Morris Glass**, 2979 Queensbury Dr., Los Angeles, Calif., Owner Builds, $2,460,000, 13 story APARTMENT, 838 N. Doheny Dr., LOS ANGELES, CALIF. Victor Gruen & Assoc., 135 S. Doheny Dr., Beverly Hills, Calif., archts.

▲ **Tavares Development Co.**, Box 967, La Mesa, Calif., development agent for **Sunset International Petroleum Corp.**, 400 S. Beverly Dr., Beverly Hills, Calif., Owner Builds, $10,000,000, 500 HOMES (1st year) Total cost $1,000,000,000 (20 year program) all total 32,000 homes, 1,500 homes after first increment, 12,000 acres, ROCKLIN, CALIF. Preliminary layout of sites due January 1961, possibly industrial bldg. in later stages.

WHERE THERE'S A
BIG JOB
THERE IS A
KERN
INSTRUMENT

WORLD FAMOUS
precision surveying instruments... compact, rugged construction... fast, effortless operation. More reliable results in less time.

KERN'S NK3
precise level

Was used at Gloucester Anchorage of new Walt Whitman Bridge then under construction over Delaware River (Modjeski & Masters, Ammann & Whitney, Consultants to the Delaware Bridge Authority of Pa. and N. J.)

DESIGNED FOR HIGHEST PRECISION LEVELING

- Functional, down-to-fundamentals design—only 4½ lbs. (8 lbs. with carrying case).
- Coincidence level and fine tilt screw.
- Readings at a glance—level and rod may be read simultaneously through 30x Telescope.
- Mean leveling accuracy under normal conditions ± .008 ft. per mile.
- Kern AR coated optics produce substantial increase in brilliance and contrast of image.

Write for Brochure NK 527-1

PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL

Kern SWISS — The *FINEST* in *SURVEYING EQUIPMENT*

KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 16 British Columbia
STREETS AND ROADS
August 17 British Columbia August 24, 31 Ontario

BUILDINGS—BA

▲ **B. C., Nanaimo**—HOSPITAL—BA 8/31—Nanaimo Regional General Hospital, 5 and 6 story, rein.-con. 200 bed hospital, $3,500,000. Plans deposit $100. Gardiner, Thornton, Gathe & Assocs., 1520 Alberni St., Vancouver, archts. CD 11/30/55.

▲ **Ont., Goderich**—HOSPITAL—BA 8/31—Dpt. P. Wks., Parliament Bldgs., Toronto, hospital for mentally retarded children. $3,500,000. CD 5/21/58.

BUILDINGS—LB & CA

▲ **Burns & Dutton Concrete & Constr. Co., Ltd.**, 1251 Vulcan Way, Richmond, B. C., LB $2,500,000, 80,-000 sq. ft. SHOPPING CENTRE, incl. supermarket, 16 variety stores, three specialty shops, 2 story office block, POWELL RIVER, B. C. J. Aceman & S. H. Rosen, 630 Rogers Bldg., Vancouver, B. C. CD 2/1.

U. S. POSSESSIONS

BUILDINGS—LB & CA

▲† **W. B. Uhlhorn Constr. Co.**, 3201 S. Hy. 77, Harlingen, Tex., LB $2,306,502, est. $2,228,100, (7 bidders), 84 unit HOUSING, Balboa Heights, CANAL ZONE, Panama Canal Co., 21 West St., New York, N. Y., U.S.A. Bids July 22. CD 6/21.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **India, Bombay**—BA 9/12—Bombay Port Trust, S. B. Dalal, ch. engr., Ballard Rd., Ft. Bombay 1, dredging Bombay Harbor channel. $4,200,000. Plans deposit $63.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Ill., Oak Park**—Village, Village Hall, 2.5 m.g. water reservoir, $2,500,000. Greeley & Hansen, 14 E. Jackson Blvd., Chicago, Zone 4, consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Mich., Ecorse**—City, 4373 High St., storm sewers, bldgs., pumps, related equipment, $4,300,000. S. W. Liddle, Cicotte and High Sts., City engr.

▲ **Mich., Kalamazoo**—City and Allied Paper Corp., 1608 Lake St., wastes treatment plant, $3,000,000, Jones, Henry & Williams, 2000 W. Central, Toledo, O., engrs.

▲ **N. Y., White Plains**—Dpt. P. Wks., Westchester Co., County Office Bldg., White Plains, sewage plant modernization, $5,500,000; or sewage plant, Hen Island. $9,500,000.

▲ **Tex., Amarillo**—City, City Hall, bond election Sept. 12, sewer imprvs., $5,500,000. Freese, Nichols & Endress, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 2/16.

▲ **Tex., Houston**—City, City Hall, sanitary sewer trunk line, SW area of city, $3,000,000; enlragement sewage disposal plant, $107,000, Turner & Collie, C & I Life Bld., consult. engrs. CD 9/16.

STREETS AND ROADS

▲ **KENTUCKY**—Commonwealth of Kentucky, Dpt. Hys., Frankfort, 2nd Section Kentucky Turnpike, Elizabethtown to Princeton, $70,000,000. Bids Apr. 1961 initial section. Hurst-Rosche & Assocs., Inc., 1630 N. Bway., Lexington; Johnson, Depp & Quisenberry, 1625 Frederica St., Owensboro; Harry Balke Engineers, 990 Nassau St., Cincinnati 6, O.; Carl P. Kroboth, 700 N. Bway., Lexington; L. E. Gregg & Assoc., 1026 New Circle Rd., P. O. Box 1325, Lexington; C. J. Fuller, 190 N Upper St., Lexington; Preston & Assoc., Inc., 700 N. Bway., Lexington; H. A. Spalding, Baker Bldg., Hazard; Adam K. Grafe Assoc., Inc., 1630 N. Bway., Lexington, consult. engrs. Brighton Eng. Co., 314 Wilkinson St., Frankfort, general consults. Wilbur Smith & Assoc., 495 Orange St., New Haven, Conn. made traffic survey.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
Allegheny Co.—Northside Freeway system, Lower belt route to parallel Allegheny River, then west to vicinity of Reedsville and Chateau Sts., Pittsburgh. $100,000,000. F. S. Poorman, c/o owner, engr.

▲ **SOUTH DAKOTA**—State Dpt., Hys., Pierre, Brule and Gregory Counties—roads, bridge approaches, 13.785 mi., SD 50 to SD 37 over Fort Randall Reservoir, $1,500,000.

▲ **Tex., Orange**—Orange County, Comrs. Court, Courthouse, bond election Aug. 13, county-wide road improvements, paving, bridges, $5,245,503; industrial road construction, $250,997. CD 3/23/59.

EARTHWORK, WATERWAYS

▲ **Calif., Salinas**—Monterey County Flood Control Dist., water supply and irrigation dam, San Antonio River. $9,705,000. To go ahead 1963.

▲† **Kansas**—Upper Verdigris Watershed Joint District 24, Olpe, 210,860 acres watershed protection Upper Verdigris, Greenwood, Lyon, Chase, Woodson and Coffey Counties, for Soil Conservation Service. $2,881,-216.

▲† **South Dakota**—U. S. Eng., 1709 Jackson St., Omaha, 2, Neb., intake power house structure for eight 60,000 kw hydro-electric power units, Big Ben Dam, Fort Thompson, SC Inv. 25-066-61-15, $10,000,000. CD 10/4/55.

AIRPORTS

▲† **Alaska, Eielson Air Force Base**—AIRPORT FACILITIES—U. S. Eng., P. O. Box 7002, Anchorage, operational and training, maintenance and supply facilities. Eielson Air Force Base, $5,178,000.

▲† **Fla., Cocoa**—OPERATIONAL, MAINTENANCE FACILITIES, etc.—Dpt. Procurement, Air Force Missile Test Center, Patrick Air Force Base, operational, maintenance, research, development and test facilities, supply facilities and utilities, Patrick Air Force Base. $5,065,000.

▲† **Fla., Eglin Air Force Base**—OPERATIONAL, MAINTENANCE FACILITIES, etc.—U. S. Eng., 2301 Grant St., Mobile, Ala., operational maintenance, research, development and test supply and community facilities, Eglin Air Force Base, Valparaiso. $2,312,000.

▲† **Mass., Bedford**—RESEARCH, etc.—U. S. Eng., 424 Trapelo Rd., Waltham, Zone 54, research, development, test, supply, administrative facilities, Laurence G. Hanscom Field, $2,011,000.

▲† **Mich., Kincheloe Air Force Base**—OPERATIONAL, etc.—U. S. Eng., 1101 Washington Blvd., Detroit, operational and training facilities, maintenance, supply and administrative facilities, troop housing, community facilities, $3,619,000.

▲† **Miss., Meridian** — OPERATIONAL AND MAINTENANCE FACILITIES, etc.—Dpt. P. Wks., Sixth Naval Dist., Bldg. No. 13, U. S. Naval Base, Charleston, S. C., operational, maintenance, ammunition supply and community facilities, utilities, ground imprvs., Naval Auxiliary Air Station. $2,695,000. CD 9/25.

▲† **Mont., Glasgow**—TRAINING FACILITIES, etc.—U. S. Eng., City-County Airport, Walla Walla, Wash., operational and training, maintenance, supply and administrative facilities, troop housing and community facilities, Glasgow Air Force Base, $3,694,000. CD 9/28.

▲† **N. H., Nashua**—AIR CENTER—U. S. Eng., 424 Trapelo Rd., Waltham, Mass., Air Center, $4,000,000.

▲ **Tex., Houston**—City, Airport Div., City Hall, 2nd airport, $6,000,000, Lockwood, Andrews & Newman, 1010 Waugh; Turner & Collie, C&I Life Bldg., and Harry E. Bovay, Jr., 5009 Caroline St., consult. engrs. CD 7/16/50.

▲† **Tex., Lackland Air Force Base**—TRAINING FACILITIES, etc.—U. S. Eng., 606 Sante Fe Bldg., Galveston, training, administrative facilities, and troop housing, $5,427,000. CD 5/2/51.

▲† **Utah, Hill Air Force Base**—OPERATIONAL FACILITIES—U. S. Eng., 180 New Montgomery St., San Francisco, Calif., operational and maintenance facilities, Ogden. $4,095,000.

▲† **Wash., Spokane**—OPERATIONAL FACILITIES, etc.—U. S. Eng., 1519 S. Alaskan Way, Seattle, operational and community facilities, Fairchild Air Force Base, $5,951,000.

UNCLASSIFIED

▲ **Ark., McGhee**—HUMP YARD, etc.—Missouri Pacific R.R. Co., W. H. Hobbs, ch. engr., Missouri Pacific Bldg., St. Louis 3, Mo., hump yard and overpass, $6,500,000.

▲† **N. H., Portsmouth**—OPERATIONAL, MAINTENANCE FACILITIES—First Naval Dist., 495 Summer St., Boston, Mass., operational and maintenance facilities, utilities, Naval Shipyard, $6,829,000.

▲† **S. C., Charleston**—MAINTENANCE FACILITIES—Dist. P. Wks. Office, 6th Naval Dist., Bldg. 13, U. S. Naval Base, maintenance facilities, Naval Shipyard, $14,855,000.

▲† **Tenn., Tullahoma**—RESEARCH DEVELOPMENT, etc.—U. S. Eng., Arnold Air Force Station, research development, test facilities, Arnold Engineering Development Center, $10,500,000. CD 11/16/54.

▲ **Texas**—GAS LINES—Coastal States Gas Producing Co., Petroleum Tower, Corpus Christi, 230 mi. 4- to 20-in. gas line from George West, Live Oak Co. to near Hallesttsville, Lavaca Co., $4,460,000; 40 mi. 4- to 14-in. gas line from Hebbronville, Jim Hogg Co. to Bustamenta, Zapata Co., $480,000.

▲† **Va., Portsmouth**—UTILITIES—Dist. P. Wks. Office, 5th Naval Dist., U. S. Naval Base, Norfolk, utilities, Naval Shipyard, Norfolk, $2,790,000.

PUBLIC BUILDINGS

▲† **Ala., Fort Rucker**—HOUSING—U. S. Eng., P. O. Box 61, Tulsa 2, Okla., 498 units, Capehart housing, $4,000,000.

▲† **Ala., Fort Rucker**—OPERATIONAL, TRAINING FACILITIES—U. S. Eng., 2301 Grant St., Mobile, operational, training, maintenance, community facilities, utilities, ground imprvs., $3,371,000. CD 9/25.

▲† **Alaska, Fort Greeley**—HOUSING, etc.—U. S. Eng., P. O. Box 7002, Anchorage, family housing, community facilities, $2,649,000.

▲† **Calif., Alameda**—HOUSING—Dist. P. Wks. Officer, 12th Naval Dist., Room C-112, San Bruno, 900-units Capehart Housing, Naval Air Station $9,000,000.

▲† **Calif., Monterey**—HOUSING—Twelfth Naval Dist., San Bruno, 250-unit Capehart Housing, Naval Post Graduate School. $2,500,000.

▲ **Colo., Westminster** — HOSPITAL — City, City Hall, P-Colo-3017, hospital, $2,242,000.

▲† **Me., Winter Harbor**—OPERATIONAL—First Naval Dist., 495 Summer St., Boston, Mass., operational facilities, Naval Security Group Activity, $2,279,000.

▲† **Md., Fort George G. Meade**—HOUSING—U. S. Eng., 24 St. and Maryland Ave., Baltimore, 400-unit Capehart Housing. $4,000,000.

▲ **Neb., Scottsbluff**—MEDICAL CENTER—Western Nebraska General Hospital, Scottsbluff, plans by Hewitt & Reyer, 607 Westport Rd., Kansas City, Mo., medical center, 3-story 80-bed hospital, 20-bed nursing home, nurses residence hall, etc. $2,108,000. CD 12/17.

▲ **N. M., Albuquerque**—FINE ARTS CENTER—University of New Mexico, Albuquerque, plans by Holien, Buckley & Assoc., Box 668, Santa Fe, N. M., Fine Arts Center, $5,000,000. Fred J. Fricke, 13130 Central Ave. S. E. Albuquerque, struct, engr. Bridges & Paxton, 213 Luisa St., Albuquerque, mech. engrs. Carl Albach, 1210 Luisa St., Santa Fe, elec. engr. CD 10/30.

▲† **Okla. Fort Sill**—HOUSING UNITS—U. S. Eng., Box 61, Tulsa, 350 units, Capehart Housing, $3,000,000.

▲† **Pa., Phila.**—HOUSING—Dist. P. Wks. Office, Fourth Naval Dist., U. S. Naval Base, 400 unit Capehart Housing, Naval Base, $4,000,000.

▲† **S. C., Charleston**—HOUSING—Sixth Naval Dist., Naval Base, Charleston, S. C., 500-units Capehart Housing, Naval Station. $5,000,000.

▲ **S. C., Columbia**—MUNICIPAL—City, City Hall, plans by Lyles, Bisset, Carlisle & Wolff, 1800 Gervais St., municipal bldg. $5,350,000.

▲† **Tenn., Memphis**—HOUSING—Dist. P. Wks. Officer, Bldg. 13, U. S. Naval Base, Charleston, S. C., 500 unit Capehart Housing, Naval Air Station, $5,000,000.

▲ **Tex., Arlington**—SCIENCE—Arlington State College, science, $2,000,000. CD 12/13/57.

▲† **Wash., Fort Lewis**—HOUSING UNITS—U. S. Eng., 1519 S. Alaskan Way, Seattle, Zone 4, 500 units Capehart Housing, $5,000,000.

▲ **Alta., Edmonton**—HOSPITAL—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by Rule, Wynn & Rule, 11422 Jasper Ave., John A. MacDonald, 833 Tegler Bldg. and B. Wood, 10627, 146th St., Charles Camsell Hospital extension, $8,500,000. CD 7/14.

▲ **Ont., Ottawa**—HOSPITALS, etc.—City, City Hall, hospital, $4,750,000; convalescent hospital, $2,000,-000; Home for Aged, $1,600,000.

COMMERCIAL BUILDINGS

▲ **Fla., Tampa**—HOTEL—Heart O'Tampa, Inc., Rocky Point Beach Hotel, Courtney Campbell Causeway, plans by M. Donald Lane, Jr., 11 Cannon St., Poughkeepsie, N. Y., 7 story, 199,000 sq. ft. hotel, $2,500,000. Milton Chizen, 9 Cannon St., Poughkeepsie, N. Y., consult. engr.

▲ **Fla., Treasure Island (Br. St. Petersburg)**—APARTMENTS—Leonard L. Farber of Fla., Inc., 773 Skyway Blvd., St. Petersburg, three 10 to 12 story co-op apartments, $2,000,000.

▲ **Ill., Peoria**—HOSPITAL—St. Francis Hospital, Sisters of Third Order of St. Francis, 530 NE Glen Oak Ave., Phase III, 8 story hospital, $5,000,000, Constr. 1962 or 1963; Phase II, Children's Hospital addn., $1,250,000; Part I, modernizing A bldg., hospital, $500,000.

▲ **Ky., Covington**—HOME FOR AGED—Northern Kentucky Assoc. of Protestant Churches. Plans by Harley Fisk, 401 Pike St., Home for the Aged, $2,000,000.

▲ **Ky., Owensboro**—OFFICE—Texas Gas Transmission Corp., Owensboro, office, 28 acre tract, southern edge of town. $3,500,000. Construction this fall.

▲ **Mass., Bedford**—COMPUTER, etc.—Mitre Corp.-Hanscom Field, Bedford, c/o U. S. Eng., 424 Trapelo Rd., Waltham, plans by Cabot, Cabot & Forbes Assoc., 60 State St., Boston, computer bldg. and offices, $4,000,000. CD 11/11.

▲ **N. J., Lakewood**—HOTEL—Syndicate Investor's Corp., 20 Branford Place, Newark, plans by Davis, Brody, Wisniewski, 220 E. 23rd St., New York 10, N. Y., 5 story hotel, raised on platform base. $2,000,000. Wisenfeld, Hayward & Leon, 113 E. 37th St., New York 16, N. Y., struct. engrs. Wald & Zigar, 23-03 45 Rd., Long Island City 5, N. Y., mech. engrs.

▲ **N. Y., Brooklyn**—APARTMENTS—Glick Constr. Corp., Cropsey Ave. and Bay 44 St., Brooklyn, Zone 7, two 16 story, 321-unit apartments, Contello Towers Section II, Cropsey Ave., Shore Parkway, Bay 46 and Bay 47 Sts., Bensonhurst. $5,000,000.

▲ **N. Y., Carle Place**—APARTMENTS—Harry & Myron Nelkin, 290 N. Broadway, Hicksville, plans by Harold Nosow, 74-02 Woodside Ave., Elmhurst, 6 apartments, Guineau Woods Rd. $2,750,000.

▲ **N. Y., New York**—OFFICE—Columbia Broadcasting System, Inc., 485 Madison Ave., plans by Eero Saarinen & Assoc., 1300 N. Woodward Ave., Birmingham, Mich., office, Ave. of Americas, between W. 52nd and 53rd Sts. $7,000,000.

▲ **O., Northfield**—HOMES—Wargo Realty Co., 9219 Miles Ave., Cleveland, Zone 5, 190 homes, Brandywine Estates. $5,700,000.

▲ **Tex., Dallas**—BANK-OFFICE—Bank of Services Bldg. c/o Morey & Burnes, archts., 1424 Life of America Bldg., bank-office. $6,000,000.

▲ **Tex., Houston**—STORE—Cadmah Realty Co., 1111 Rosalie St., 175,000 sq. ft. masonry store, Eastex Freeway, Langley Rd., Jansen Drive, $2,750,000; store in S. Main St. area $2,250,000, John J. Day, 1111 Rosalie St., consult. engr. CD 7/27.

▲ **Tex., Houston**—APARTMENT—Percy Smidth Interests, State Nat'l. Bank Bldg., 20 story apartment, Main and Pierce Sts. $6,000,000.

▲ **Tex., Houston**—HOSPITAL—St. Luke's Episcopal Hospital, 6720 Bertner St., hospital addn., $6,500,000; garage-power plant, 30 addnl. beds, laboratory expansion, $2,500,000.

▲ **Tex., Houston**—HOTEL—Syndicate, 201 Main St., 8-story Continental Motor Hotel, north side of city, $3,250,000.

▲ **Wis., Milwaukee**—OFFICE—Journal Co., 33 W. State St., Zone 2, plans by Eschweiler & Eschweiler, 720 Madison St., Milwaukee, and Pereira & Assocs., 316 N. Michigan St., Chicago, Ill., 3 to 6 story, 170 x 200 ft. office addn. $5,755,000. Bids about September. CD 10/15.

▲ **Man., Winnipeg** — OFFICE — Leasehold Investments Ltd., 634 Somerset Bldg., plans by Schaefer, Plumton & Nipper, 634 Somerset Bldg., 11 story, steel, concrete office, Hargrave St. and York Ave. $2,000,000.

▲ **Ont., Toronto**—HOSPITAL—Hospital for Sick Children, 555 University Ave., plans by Govan, Ferguson, Lindsay, Kaminker, Langley & Keenleyside, 10 Price St., first phase, 10 story hospital wing, Gerrard St., 3 story centre wing addn., $4,800,000. C. D. Carruthers & Wallace Consultants Ltd., 92 Yorkville Ave., consult. engrs. CD 3/28.

▲ **Ont., Ottawa**—APARTMENT—R. Campeau, 969 Bronson Ave., plans by G. E. Bemi & Assocs., 969 Bronson Ave., 12 story, 56 x 327 ft., concrete, brick apartment. $2,000,000.

▲ **Ont., Ottawa**—TELEVISION STATION—Ernest Bushnell Broadcasting Assocs., Ltd., 130 Slater St., plans by Auguste Martineau, 72 Queen St., television station, City View. $2,500,000.

INDUSTRIAL BUILDINGS

▲ **Conn., Hartford**—GAS PLANT—Hartford Gas Co., 233 Pearl St., gas plant, heating, air conditioning, Front St., Constitution Plaza, $3,000,000. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., consult. engrs.

▲ **Illinois**—POWER PLANT, etc.—Southern Illinois Power Cooperative, Steeleville, 99,000 kw. power plant, dam, South Fork Saline River near Marion, $15,800,000, Burns & McDonnell Engineering Co., 95th and Troost Ss., Kansas City, Mo., consult. engr.; 354 mi. 69,000 volt transmission lines from 99,000 kw. power plant near Marion to connect distribution system of Egyptian Electric Cooperative Assn., Steeleville. Southeastern Illinois Electric Cooperative Eldorado and Southern Illinois Electric Cooperative, Dongola, $4,600,000, Southern Engineering Co., 1000 Crescent Ave. NE, Atlanta, Ga., consult. engr., CD 4/1; turbine generators, condensers, steam generating equipment for 99,000 kw. power plant South Fork Saline River near Marion, $10,000,000. Burns & McDonnell Engineering Co., 95th and Troost St., Kansas City, Mo., consult. engr. CD 5/26, under Egyptian Electric Cooperative Assn., as owner.

▲ **Ill., Granite City**—GRAIN ELEVATOR—Bi-State Development Agency, 915 Olive St., St. Louis 1, Mo., 5,000,000-bu. grain elevator, Chain of Rocks Canal Harbor, $5,000,000.

▲ **Iowa, Fort Madison**—PLANT—California Spray-Chemical Corp., Lucas St. and Ortho Way, Richland, Calif., chemical fertilizer plant. $22,000,000.

▲ **N. J., South Plainfield**—INDUSTRIAL PARK—Sanford Nalitt, 401 Wooddale Ave., Staten Island, Zone 2, Industrial park, Park and Oak Tree Aves. $3,000,000.

▲ **Tex., Corpus Christi**—PLANT—Suntide Refining Co., sub. Sunray Mid-Continent Oil, Viola Rd., styrene refining plant, $2,500,000.

▲ **Tex., Palestine**—MILL—Sovereign Resources, Inc., Suite 213,211 N. Ervay St., Dallas, Zone 22, finished steel ingots steel mill, rolling mill. $26,000,000. Koppers Co., Koppers Bldg., Pittsburgh, Pa., consult. engrs.

▲ **Ont., Oshawa**—WAREHOUSE ADDN., etc.—General Motors of Canada Ltd., Oshawa, 445,000 sq. ft. warehouse parts addn. and 75,000 sq. ft. office parts addn. $2,500,000.

LATIN AMERICA

▲ **Bolivia**—POWER PLANT — Bolivian Development Corp., Govt. Bolivia, La Paz, power plant, Corani, Dpt. of Cochabamba, $4,000,000. Montreal Engineering Co., Ltd., 244 St. James St. W., Montreal, Que., Canada, consult. engrs.

FOREIGN

▲ **B. W. I., Jamaica**—Water Comm., 28-30 Church St., Kingston, Jamaica, B.W.I., earth or concrete dam, intake weirs, aqueducts and tunnels, pumping stations, rising mains, gravity pipe lines, treatment works and service reservoirs. $11,200,000. Interested firms should register by Aug. 15. Howard Humphreys & Sons, Victoria Station House, Victoria St., London, S. W. 1, England, engrs.

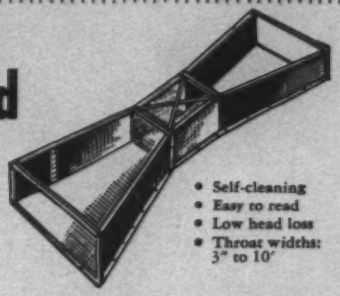
(Proposal Advertisements see pp. 102 to 105)

WATER MEASUREMENT

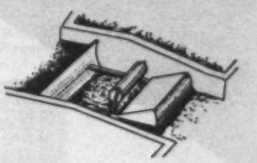
. . . accurate easy to read

PARSHALL MEASURING FLUME

For open channels in industrial plants, waterworks, irrigation systems and sewage disposal plants. Galvanized steel.



- Self-cleaning
- Easy to read
- Low head loss
- Throat widths: 3" to 10'



AUTOMATIC CONTROL GATES

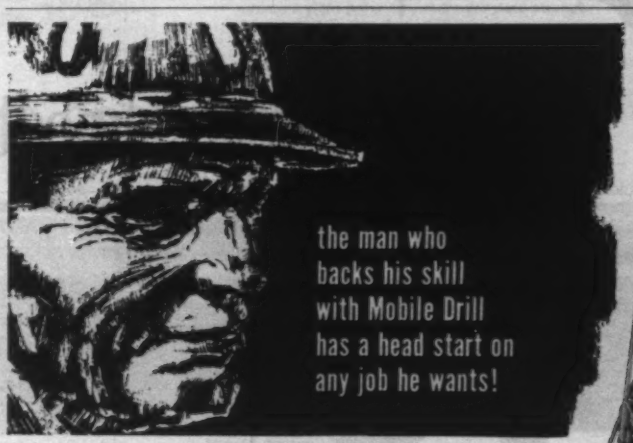
Regulate flow and water levels regardless of water supply variation. Ends need for 24-hour supervision . . . prevents waste, flood damage and overflow. No floats, sheaves, motors or cables.

WELL CASING Scientifically designed for all soil conditions. Made of mild, stainless and alloy steels for long life and low initial cost. Five perforations and four field joints for fast assembly. Write for free literature.

TPO-1A

THOMPSON PIPE & STEEL COMPANY

3029 Larimer Street • TAbor 5-1241 • Denver 1, Colorado



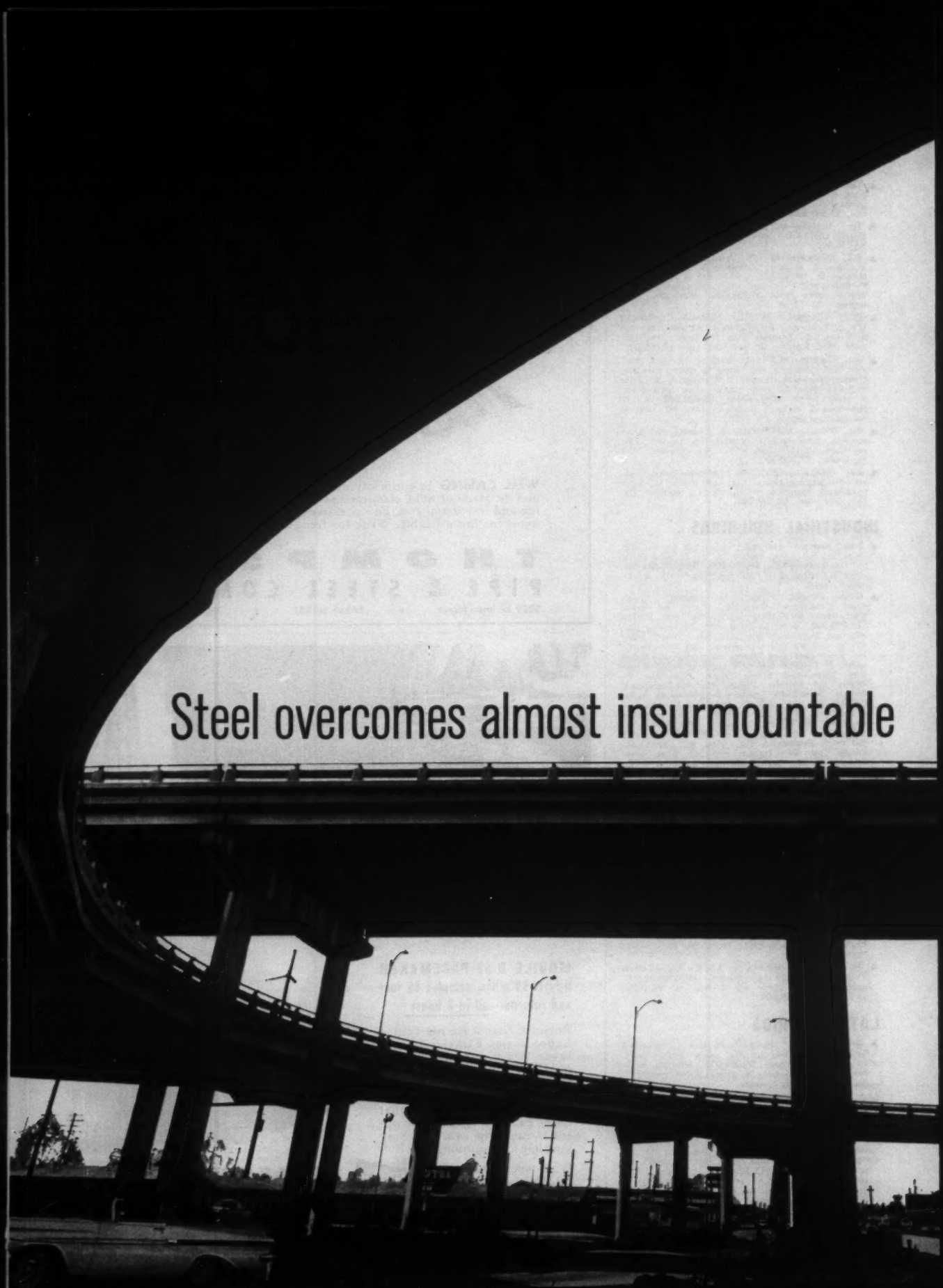
MOBILE B-52 PACEMAKER
travels 60 miles, samples 95 feet and returns—all in 6 hours!

Robert J. Kriz of Herron Testing Laboratories, Cleveland, Ohio says, "Since using the PACEMAKER with Hollow Stems for foundation testing, we produce more with three crews than we were with four conventional crews. Even on big jobs, one operator can keep two men busy sampling and recording."

Write today for specifications and prices . . .

MOBILE DRILL

MOBILE DRILLING, INC.
Dept. 26 • 960 N. Pennsylvania St.
Indianapolis, Indiana


Steel overcomes almost insurmountable

Famous 4-level intersection of Greater New Orleans Expressway at Causeway Boulevard. Built over 11 railroad tracks. Fast erection with steel eliminated serious traffic interruptions. Fabricated by American Bridge Division, using 6000 tons of structural steel.

◀ Intersection showing construction with simple steel beams which reduced costs and saved time.

Mr. Wayne F. Palmer, President, Palmer & Baker Engineers, Inc., Admiral Wm. H. Smith, Vice President and Chief Engineer, and Mr. Kenneth C. Roberts, Assistant Chief Engineer for Design.

USS Steels for Bridge Design

Structural Carbon Steel 33,000 psi minimum yield point	**USS MAN-TEN High Strength Steel** 50,000 psi minimum yield point
USS TRI-TEN High Strength Steel 50,000 psi minimum yield point	**USS "T-1" Constructional Alloy Steel** 100,000 psi minimum yield strength

obstacles in short-span bridge design

at Palmer & Baker Engineers, Inc., Mobile, Ala.

If you want to see how seemingly impossible bridge and highway problems were solved with steel, take a trip around New Orleans and east along the Gulf Coast. In this area, the consulting engineering firm of Palmer & Baker has designed some of the most interesting structures in the country. Last year, with a staff of about 400 people, they handled approximately $155,000,000 worth of Interstate Highway and Bridge projects.

One of their most difficult projects was a 4-level highway interchange and railroad grade separation located on Causeway Boulevard and the Greater New Orleans Expressway. Eleven railroad tracks that couldn't be moved ran through the area. The use of steel permitted the interchange to be built without interrupting railroad traffic. Highway traffic amounts to an average of 65,000 cars daily.

Here is a practical example of the versatility of steel structural members. No difficulty was encountered in moving steel into position and the traffic flowed through without tie-ups. Certainly any other method of construction would have been not only impracticable but considerably more expensive.

Recently Palmer & Baker completed plans for a proposed 78-mile superhighway traversing undeveloped bayou country of Southern Louisiana. The highway will be built literally on top of a swamp. Each of the 18 bridges will be of steel, including the pilings set in the swamp.

Basic advantages of steel construction.

Steel saves time in both engineering and construction.

Steel saves money by reducing foundation costs and speeding up construction.

Steel permits greater clearance, or the same clearance with lower approaches.

Steel can be transported easily and economically to the site.

Steel of the high strength, corrosion-resisting types saves weight, reduces painting costs and cuts foundation costs.

Steel is readily available in any part of the country.

USS, MAN-TEN, TRI-TEN and "T-1" are registered trademarks

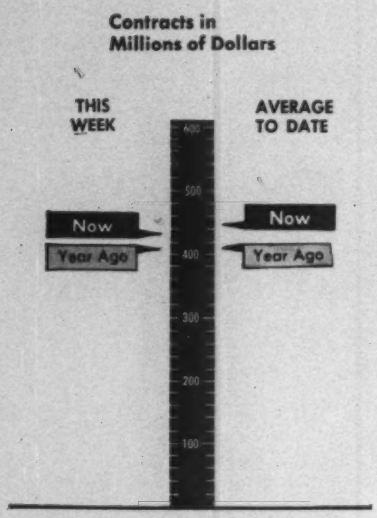
United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company
United States Steel

USS

This mark tells you a product is made of modern, dependable Steel.

Construction Scoreboard

This Week . . .



AMOUNT OF CONTRACTS LET

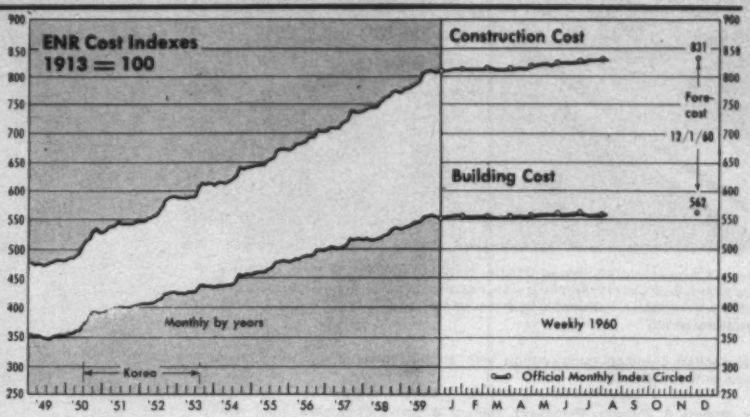
Contracts Awarded In 50 States	This Week	Cum. 32 wks 1960	Chge '59-'60
By Type	millions		%
All Heavy Construction	$435.5	$14,364.3	+ 9
By Ownership			
PRIVATE	273.2	7,697.2	+20
PUBLIC	162.3	6,667.1	− 2
State & Municipal	131.7	5,109.2	+ 6
Federal	30.6	1,557.9	−23
By Type of Work			
PUBLIC			
Waterworks	3.9	301.3	+10
Sewerage	5.3	374.0	−10
Bridges*	13.4	483.0	+21
Highways	67.3	2,065.4	+ 3
Earthwork, Dams & Waterways	2.7	499.0	−14
Buildings:			
Excl. Housing	32.0	1,495.6	−13
Housing	27.2	416.4	−13
Unclassified	10.5	1,033.8	+11
PRIVATE			
Buildings:			
Mass Housing	182.0	3,933.2	+34
Commercial	31.2	1,525.4	+ 5
Industrial	56.1	1,673.9	− 2
Unclassified	3.9	563.3	+78

* Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of Aug. 4	Cum. 31 wks 1960	Chge '59-'60
	millions		%
Corporate Securities	$ 54.4	$1,843.2	−24
State and Municipal:			
All Except Housing	238.6	4,320.6	+13
Housing	....	182.2	+142
Federal Loans	2.7	108.8	+22
Federal Aid	....	2,717.8	+15,000
Total Nonfederal	$295.7	$9,172.6	+43
Federal Appropriations:			
Projects in U.S.	....	$1,317.1	+325
Outside U.S.	....	157.8	+10,400
Total New Capital	$295.7	$10,647.6	+58


ENR Cost Indexes 1913 = 100
Construction Cost
831
Forecast 12/1/60
Building Cost
542
Monthly by years
Weekly 1960
Korea
Official Monthly Index Circled
'49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 J F M A M J J A S O N D

ENR INDEXES (1913=100), 20-cities' average	Week of Aug. 4 1960	% Change from July 7 1960	% Change from Aug. 6 1959
Construction Cost	829.91	+0.14	+2.27
Building Cost	561.21	+0.07	+1.13

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850. 1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

Latest Month . . .

CONTRACTS AWARDED

	1960 July (millions)	1960 7-Mos. (millions)	Percent Change† from 1959 July	Percent Change† from 1959 7-Mos.
Total U. S. (ENR reported)	$2,005.1	$13,367.1	+ 5	+ 8
Private	1,080.6	7,216.5	+16	+20
Public	924.5	6,150.6	− 5	− 4
State and Municipal	731.4	4,665.0	+ 6	+ 5
Federal	193.1	1,485.6	−32	−22
ENR Volume Index, 1913 = 100	683	604	+ 2	+ 4

NEW CONSTRUCTION CAPITAL

Total U. S.	2,102.3	10,351.8	+110	+59
State and Municipal Bond Sales	542.5	4,264.2	+ 1	+13
Corporate Security Sales	258.5	1,788.8	+13	−24
Federal Loans, Aid (nonfederal work)	28.8	2,823.9	+102	+2,605
Federal Appropriations, (federal work)*	1,272.5	1,474.9	+483	+390

* Includes funds for outside U. S.

† Based on average week: 4 weeks in July 1960, 5 weeks in July 1959; 30 weeks in first seven months of 1960, 31 weeks in first seven months of 1959.

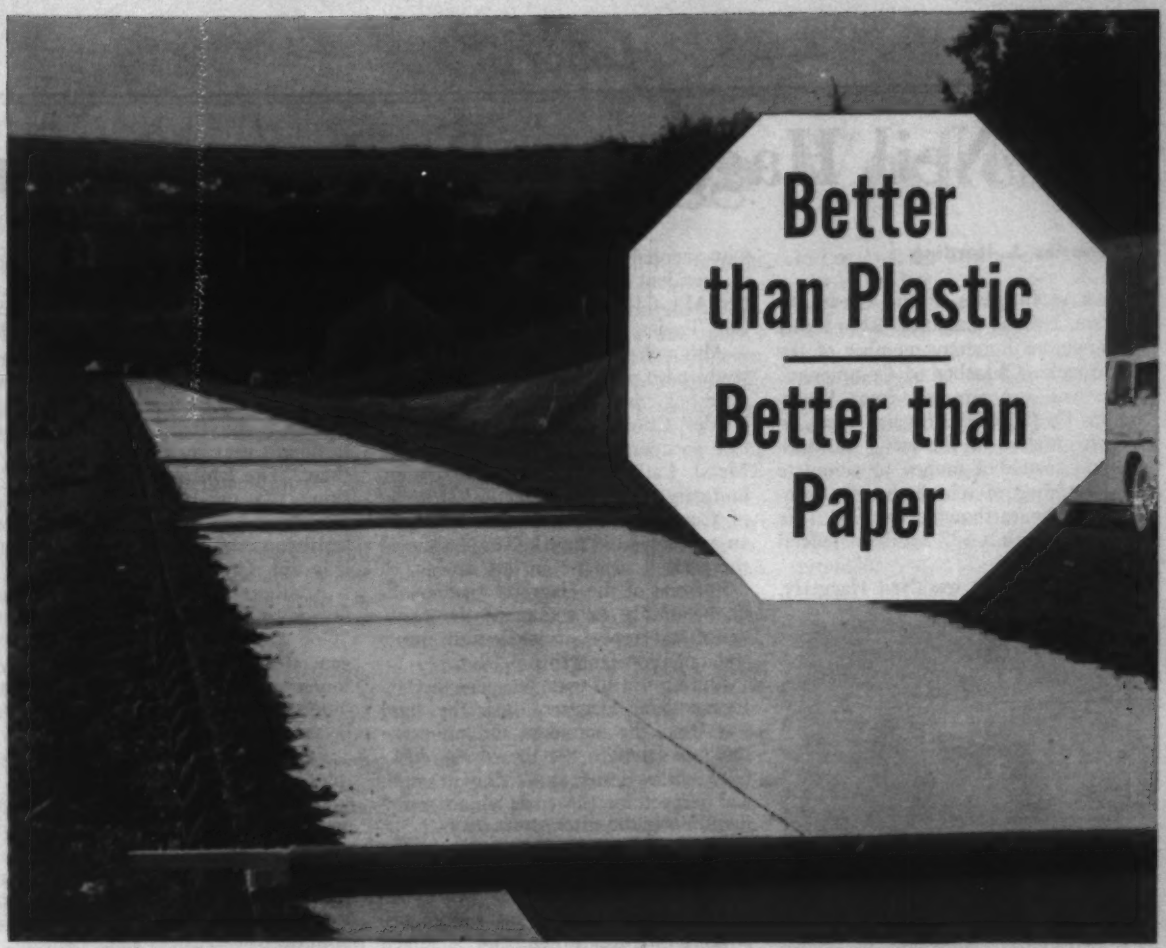
MATERIALS SHIPMENTS

	1960 May (M) June (J)	1960 Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Percent Change from Year Ago Cum.
Portland Cement, Bur Mines, thous bbls	34,045(J)	135,594(5)	− 6	−10
Concrete Paving Awards, PCA, thous sq yd	5,784(J)	31,896(6)	+ 3	+ 8
Fabricated Structural Steel, thous tons	333(J)	1,631(6)	− 9	− 1
Bookings, AISC, thous tons	268(J)	1,736(6)	− 8	+ 8
Reinforcing Bars, Net, AISI, thous tons	210(J)	1,037(6)	−39	−26
Lumber, NLMA, mil fbm	3,907(J)	18,540(6)	+21	+ 3
Orders, mil fbm	2,948(J)	17,299(6)	−0.3	− 4
Production, mil fbm	3,194(J)	18,140(6)	− 1	+ 2
Clay Products, Bureau of Census				
Brick, Unglazed, Common, Face, mil bri	672.7(M)	2,430.1(5)	− 5	−12
Vitrified Clay Sewer Pipe, thous tons	177.0(M)	681.3(5)	− 3	− 6
Structural Tile, Unglazed, thous tons	50.9(M)	202.8(5)	+ 5	− 5
Asphalt Products, Bureau of Census				
Asphalt Roofing, thous sales sqs	5,268.3(M)	18,985.2(5)	+11	−12
Asphalt Siding, thous sales sqs	61.9(M)	280.7(5)	+ 1	−18
Aluminum, Wrought, Net, Bur Census				
Sheet and Plate (non-heat treatable), mil lbs	110.5(M)	515.2(5)	−13	− 1
Wire and Cable, mil lbs	25.2(M)	119.0(5)	−12	− 4
Extruded Shapes (soft alloys), mil lbs	70.9(M)	336.0(5)	−15	− 3

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS, thous	2,977(J)	2,588(6)**	−0.3	+0.2
Contractor Failures, Dun & Bradstreet				
Number	213(J)	1,276(6)	+28	+22
Liabilities, thous	$18,618(J)	$85,341(6)	+119	+52

** Average per month



Now — White, Plastic Coated Paper
NEW SISALKRAFT FOR ROAD CURING

SISALKRAFT PROVIDES:

. . . maximum reflectivity
. . . easier handling
. . . maximum re-uses
. . . positive waterproofness

Here is a major contribution to better and lower cost curing of concrete for highways. Now, for the first time, you can have, combined in one product, the best features of paper curing and plastic curing, *and at no additional cost.*

New Sisalkraft plastic-coated paper permits *controlled,* "automatic" curing; provides the best, most practical cure possible at minimum cost.

The reflective plastic coat reduces temperature fluctuation in the slab to help produce abrasion resistant, water-tight, durable concrete.

NEW: The Sisalkraft Joint Former offers a new low cost way of forming contraction joints with removable plastic strips. Write for bulletin to American Sisalkraft Corporation, Attleboro, Massachusetts.

SISALKRAFT

AMERICAN SISALKRAFT CORPORATION
Chicago 6 • New York 17 • San Francisco 5
In Canada: Murray-Brantford Ltd., Montreal

reinforced paper, foil and plastics for construction, industrial packaging and agriculture

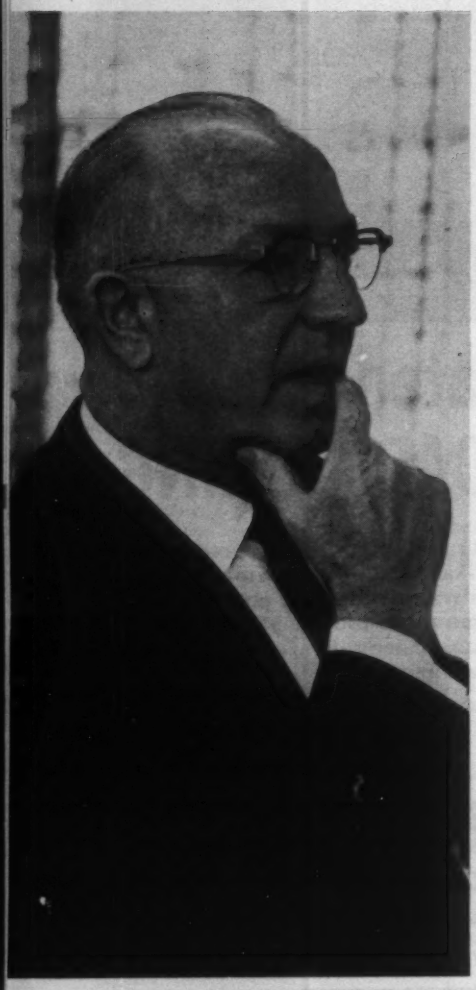
Neil Haggerty: Spokesman for

By Charles J. Harding

Back in the days of the Great Depression, a young California labor leader was made an honorary member of the Los Angeles Chamber of Commerce.

He had just returned from Washington, D. C., where he had gone, as a representative of the city's businessmen, in search of money to complete the rebuilding of schools heavily damaged by the earthquake of 1933. He came back with a $27.5-million federal grant.

The young man was Neil Haggerty, who succeeded Richard Gray last April as president of the three million-member AFL-CIO Building and Construction Trades Department.



"THE UNDERLYING CAUSE of most labor-management problems is fear."

Although young Haggerty was already past president of a local union, head of the Los Angeles Building Trades Council and an international vice president of the Wood, Wire and Metal Lathers' International Union, honorary membership in the Chamber of Commerce did not seem much of an anomoly—and now looking back over the years it seems even less so.

For one of the Haggerty trade-marks is the ability to command the confidence and respect of people both inside and outside of organized labor.

During the 40 years he spent in California, Neil Haggerty rose the hard way from the penniless and unknown ranks of labor to the top of the AFL-CIO state ladder, gathering strength and respect for the trade union movement along the often-stormy way.

He found and made friends in the Executive Mansion and in the legislative halls of Sacramento, helped secure passage of a long list of progressive, social legislation, and emerged with a reputation as a well-informed, fair-minded, honest, hard-working and conscientious individual.

Neil Haggerty is a soft-spoken even-tempered man, whose genial and bespectacled face still bears the stamp of years of California sunshine. At 67, he looks neither young nor old.

He lacks the colorful, provocative personality, the truculent zeal, of many union officials; to the casual observer, he could be a doctor or a banker, a teacher or a businessman in any Middletown, U.S.A. Twice a father and five times a grandfather, he is a Los Angeles home-owner and a Washington, D. C., apartment-dweller. He has no hobbies.

Ask those who have worked with Haggerty what kind of a man he is, and the answers will be strikingly uniform. Except for a few who accuse him of being autocratic and self-seeking, they paint a picture of a square shooting, reasonable, intelligent and methodical man who has shown a straightforward and unwavering dedication to the interests of all of labor.

"Neil Haggerty is," comments a California homebuilder, "the kind of labor leader we need in the best interests of both management and labor."

One of his most significant traits is personal integrity. And this is something he expects in others, too. He is sure, for example, that the situs picketing bill has a good chance of passage if it gets to the floor of Congress and he is sure that Congressional commitments were made last year to put it there. The fate of the bill, he says, is simply "a question of fulfillment of promises made" and if the word of our legislators is no good, it "must be publicly noted."

Another significant trait is a knack for getting people to work together. "God knows we need that," says the general president of one of the 18 autonomous AFL-CIO building trades unions that make up the department President Haggerty now heads.

Part of the knack is an understanding of fear and what it does.

"The underlying cause of most labor-management problems," Mr. Haggerty says, "is fear."

The "old, human questions," he explains, are: "'Is that fair?' 'Can you trust them?' 'Will they do what they promise?'"

Whether you are talking about strikes, the construction industry's Ten Commandments, wage-freeze proposals, the White House peace conference, the building trades' conflict with industrial unions, or any number of other issues, he notes, you run up against the same problem and the same questions.

But Neil Haggerty is confident most of the problems will work themselves out. "It will be a slow and tedious process," he says, "but that is a normal part of our democratic procedure." Some of the essential elements, he suggests, are education, mutual trust and understanding, and recognition of the right of workers to improve their lot and not come out on the short end of the stick.

His own formula is fairly simple: Know the facts and get them straight. Look at both sides of the problem. Recognize and respect the rights of all concerned. Apply common sense and

***ENR's Labor Editor Charles Harding** makes it his business to know the leaders on both sides of construction's labor-management table. In this profile he introduces the new leader of the AFL-CIO building trades unions.*

3-Million Construction Workers

good will. Agree on a fair and workable solution. Honor your commitments.

His formula works.

As head of the Los Angeles Building Trade Council, for example, he pioneered a master labor agreement considered "the most comprehensive program for standardizing employment conditions ever attempted in the industry."

By 1941 the agreement had spread to include 12 California counties and several in Nevada and Arizona. It covered all branches of the industry, embraced 20,000 contractors and 150,000 workers in six basic trades and 13 subtrades and included 10 local building trades councils as participants.

The agreement standardized rates of pay and working conditions, and paved the way for years of labor peace through effective grievance and arbitration machinery, bans on strikes and lockouts, and rules for jurisdictional disputes.

The agreement helped Mr. Haggerty establish the principal that workers and employers have little to quarrel about but wages. He feels it helped overcome the great concern of management, which he calls "fear," and, by stabilizing labor costs, allowed the full flowering of contractor competition.

Like almost everything else President Haggerty has done, this brief chapter in a life of conciliation helps explain what makes him tick. "I like people," he says, "and they make the most interesting subject I can find. Ours is a country of organizations. In our way of life and in our form of government, we find a natural stimulant to work together to make life better for those who follow."

Although it is often hard to tell what makes a man what he is, Neil Haggerty's steps have obviously been guided by a broad and varied introduction to people and to life at an early age, by very personal encounters with the "American Plan" and by the luck of choosing for a foster home an expanding and progressive state friendly to labor and receptive to social changes.

Cornelius Joseph Haggerty was born in Boston on January 10, 1894, one of 16 children. His father was a freight handler for the old Boston & Maine Railroad. Neil Haggerty quit school after the seventh grade to go to work.

One of his first jobs was driving a team for P. O'Riordan, a big teaming contractor in Boston. For a time he worked as a singer for Illustrated Songs, putting on two shows a day, plus a Sunday performance in Keith Orpheum, which was one of the top vaudeville houses in the country. Friends urged him to seek a healthier life, and he quit to become a deck-hand on a Boston steamer.

Later, with the help of a brother-in-law, he became an apprentice lather in Boston's Local 72, becoming president of the local before the outbreak of World War I.

After a two-year hitch in the Navy, doing Atlantic convoy duty on the coal-burning cruiser, U.S.S. Seattle, young Haggerty came out as a chief carpenter's mate and went to work in reinforced steel, which was then still in the lathers' jurisdiction, and settled down to domestic life with Peggy Kelleher, a home town girl.

But like many other workmen in the early '20s, his life was changed by the post-war anti-union campaign that came to be known as the American Plan.

When the Boston building trades' contracts expired in 1920, union demands for higher wages were met with antiunion cries of inflation, monopoly, inefficiency and wasteful work practices. Employers wanted a rollback in wages and a longer workweek. The resulting strike and lockout left lather Haggerty, and most union construction workers, without a job.

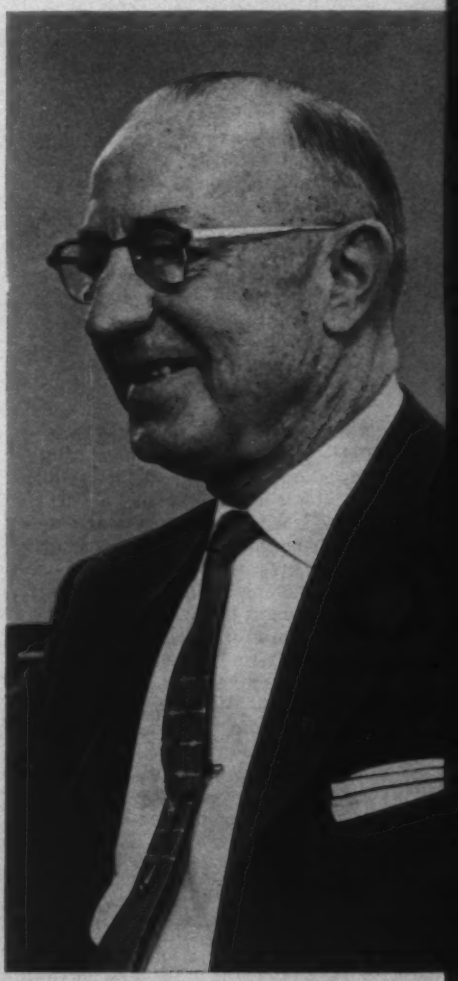
He decided to move to California. But San Francisco in 1921 turned out to be the frying pan after the fire. His arrival coincided with the beginning of the end of one of organized labor's strongest bastions. For nearly 20 years, P. H. McCarthy, a carpenter who was elected mayor in 1909, had held the reins of Bay Area union power as president of the San Francisco Building Trades Council.

Efforts of employers to regain what they called "management freedom" resulted in the formal introduction on June 13, 1921 of the open shop, American Plan. Strikebreakers were imported by the thousands; collective bargaining was prohibited; union customs and practices were abolished; the council was broken; and construction wages tumbled below those in any closed shop city in the country.

Neil Haggerty moved on down to Los Angeles, then an open shop area, where he began the work that later made him one of the West Coast's most respected labor leaders.

It started with his election as business manager of the Los Angeles local of the lathers union, and has continued in one capacity or another ever since. Mr. Haggerty has held the highest posts that state and local labor bodies have to offer and has simultaneously moved up his international union ladder from West Coast organizer to first vice president.

(*Turn the page*)



"NO HIGHER HONOR than to be chosen by fellow workers to represent them . . ."

The two most important phases of the Haggerty labor career are his local level representation of union construction workers in Los Angeles for 10 years, and his state-level promotion of the interests of all AFL, and, later, AFL-CIO, unions for 17 years.

During this period of Haggerty leadership, organized labor in California grew rapidly in numerical strength and stature. By the end of the last decade, the California Labor Federation, which Neil headed, had 1.6 million members and was the AFL-CIO's second largest state federation. The California construction industry had become almost completely unionized and its members accounted for nearly a fifth of the union labor force in the state.

Mr. Haggerty's first spectacular work in the field of organization and collective bargaining centered around the Los Angeles Building Trades Council, which he organized in 1933 and headed, as secretary-treasurer, from 1933 to 1943. He proved that all segments of the industry can be organized and gained a reputation as a "tough man" at the bargaining table.

"I feel," says a Los Angeles observer, "that Neil is one of the chief reasons why union labor in California is in the predominant position it is today. He'd fought a real uphill battle in the '30s to get labor people recognized as citizens of this country. When he came to Los Angeles, the city had been an anti-union stronghold; today labor is better organized in Los Angeles than it is anywhere in the country."

At the same time, he proved that labor and management can work together constructively and in peace. Not only did he help engineer the 1941 master labor agreement, but he was also one of the pioneers in the use of pre-job, and even pre-bid, conferences and a promoter of the use of labor coordinators and project labor agreements as tools of labor peace. When the big World War II construction programs began, he worked closely with Admiral Ben Moreell, then chief of the Navy's Bureau of Yards and Docks, to forestall manpower and labor problems on West Coast projects.

By that time Mr. Haggerty had already begun the second, or state-level, phase of his career, having served since 1936 as vice president and then as president of the California State Federation of Labor, AFL. This became a full time job in 1943, when he resigned his Los Angeles building trades' post to become the federation's secretary-treasurer—a title that means "boss" in California labor parlance.

He was elected to the same job in the California Labor Federation when the state AFL and CIO forces merged in 1958. His major responsibility was to promote the legislative interests of California labor.

"I LIKE PEOPLE, they make the most interesting subject I can find."

Labor's legislative gains during Neil Haggerty's 17 years on the Sacramento scene were impressive. The state now boasts some of the nation's most liberal and effective laws in such fields as unemployment and disability insurance, workmen's compensation, safety, apprenticeship, prevailing wages and fair employment practices. For Mr. Haggerty, the most dramatic victory of all was the 1958 election defeat of a right-to-work proposal.

Although some of labor's gains were due to changing times and a favorable climate, there is little tendency among California observers to discount the effectiveness of Mr. Haggerty's work in Sacramento. Says one of his co-workers: "He knew every assemblyman, state senator and bill. He could categorize every bill as 'good,' 'bad,' or 'other' from the labor point of view. And he was a master at finding authors and sponsors for bills that labor wanted."

Capitol observers found him thorough, factual and realistic, honest and direct, articulate and persuasive.

"He engendered respect among legislators," one state assemblyman recalls, "because of his straightforward advocacy of the cause of labor. He brought a sound and rational knowledge of the labor movement and the bills affecting labor. His word was his bond. He never avoided a question, but tried to find a satisfactory answer from the labor point of view."

During his years with the state federation, Mr. Haggerty, a nominal Democrat, had what he calls a "close understanding" with the two Republican governors, Earl Warren and Goodwin Knight, who served from 1943 to 1959. Both men were his social as well as business friends. And the office door of the present Democratic governor, Edmund Brown, has always been open to him, despite some differences of opinion over legislative matters.

In fact, he helped pave the way for labor's role as an integral part of the California governmental structure. Among the labor men he has seen appointed to state administrative agencies is Lloyd Mashburn, now general president of the lathers union, who served for two years as state labor commissioner under Governor Warren.

Though never a salaried governmental official, Mr. Haggerty has served on a wide variety of local, state and national, private and governmental advisory boards, councils, committees, delegations and commissions. These have embraced the fields of education, employment and safety; Youth Conservation, Office of Price Administration, Defense Manpower, Selective Service, and Civilian Defense; the American Legion, International Labor Organization and the AFL-CIO. He is a trustee of the San Francisco Maritime Museum, a vice president of the International Labor Press Association and a member of the Commonwealth Club of California, Town Hall in Los Angeles and the Press and Union League Club in San Francisco.

The appointment that seems to have pleased Neil Haggerty most came in 1950, when Governor Warren named him to the Board of Regents of the University of California. Mr. Haggerty was, and still is, the only labor member of the board. He had previously served as a member of the State Board of Education, and back in his early days helped install the first civil service program for the Los Angeles city school system as a member of the Los Angeles City School District Personnel Board.

Others may wonder what's next for Mr. Haggerty, but he does not. He says he has no unrealized personal ambitions and denies as "someone's aberration" a recent Boston rumor that he might become George Meany's successor as president of the AFL-CIO.

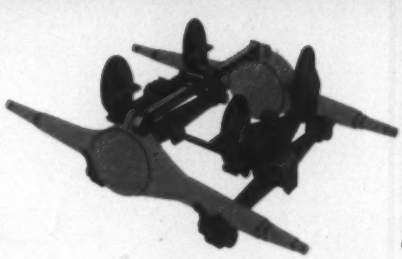
His present appointment as head of the federation's Building and Construction Trades Department is good for three more years, which is the unexpired portion of the four-year term to which Mr. Gray was elected last year.

Although Neil Haggerty became what he says he never wanted or aspired to be—a full time union official—he has no regrets. "I know of no higher honor," he says, "than to be chosen by fellow workers to represent them on their problems." And after looking at the balance sheet, he adds: "I feel that I have helped make a better place for many people to live in and to work in."

SMART CONTRACTORS ARE M

V6

Today's truly modern truck power—America's first and only V-6 gas-powered truck engines! Designed and built to out-perform, outlast previous engines . . . save you big money on operating costs. You get full, usable torque at low, life-saving rpm. Friction and wear are reduced. Fuel mileage is increased. V-6 horsepower from 150 @ 3600 rpm to 205 @ 3200 rpm. Torque from 258-260 @ 1400-2200 rpm to 375-377 @ 1200-2000 rpm.



Bigger payloads, less maintenance – With this new GMC tandem suspension, you have less truck weight for bonus payloads. Rubber mounts and bushings at all wear points practically eliminate servicing.

- **Larger, sure-stop vacuum or full air brakes.**
- **Power-Mated drive trains.**

See your GMC Dealer listed in the Yellow Pages for all the facts.

Cut job time, haul bigger loads with new GMC BW5500 Series six-wheelers. Join the contractors that are profiting from the superior performance of the exclusive 401 cubic-inch V-6 engine, larger clutches, better weight distribution with 90° BBC . . . all the advanced features that have made this the most-wanted GMC construction truck. Other models to 120,000 lbs. GCW with Twin-Six gas and V-6 diesel power.

E MOVING UP TO NEW GMCs!

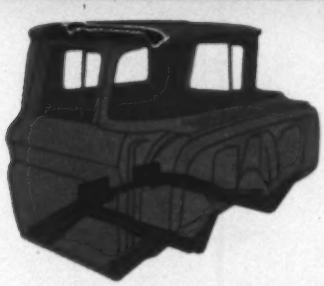
SEE WHY CONTRACTORS' FAVORITE GMCs ARE YOUR BEST TRUCK VALUES, TOO!

GMC
GENERAL MOTORS CORPORATION
TRUCKS

PULL HERE

From ½ ton to 60 ton . . .
General Motors leads the way!

Now, GMC has achieved the BIG BREAKTHROUGH in engine, chassis and cab engineering! Results: The most advanced trucks in 20 years . . . the trucks that completely answer the needs of today and the future. Trucks that last you far longer, require far less maintenance. See for yourself.



Extra-rugged cabs—All new GMC cabs have built-in reserve strength throughout . . . extra reinforcements and sturdy sills at all stress points to take the toughest construction jobs longer.

- **New design, stronger, high-tensile steel frames.**
- **Exclusive easy-to-service design.**

GMC Truck & Coach—a General Motors Division—Pontiac, Michigan

On the go to cut concrete expansion joints and fill with tar—this GMC steel tilt-cab is loaded to full 23,000 lbs. GVW. New L4000 Series have unsurpassed flexibility. For example: you have a choice of 20 axle-transmission combinations with standard 150 hp. and optional 165 hp. or 185 hp. V-6 engines. Vacuum or full air brakes available. Easy-driving independent front suspension with torsion bar springs standard.

NEW GMC TILT-CABS ARE . . .

EASIER TO DRIVE

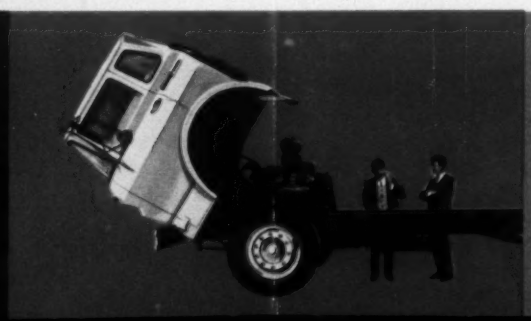
New steel tilt-cabs have front axle set-back 52 inches and short wheelbases to give you up to 25% shorter turns (small as 33.6 feet) for quick, easy handling in crowded areas.

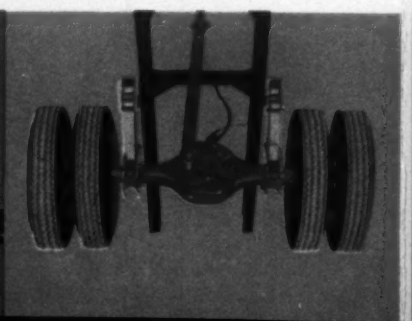
EASIER TO SERVICE

Cut service time and costs. Now you can walk right up to the engine with the cab tilted. And with all GMC tilt-cabs, controls are in perfect alignment and adjustment at all times because they are not disconnected —due to the stationary control island.

BUILT TO LAST

New design frames are stronger and more rigid. New, standard 3-inch wide vari-rate rear springs with built-in radius-rod leaf last longer . . . everything for lasting dependability.





Tight schedules, round-the-clock construction jobs call for dependable GMC Trucks. This popular 5000 Series Conventional with 105″ BBC dimension keeps cycle time down, profits up with exclusive, high-torque 180 hp. V-6 engine, balanced drive train and uncompromising ruggedness throughout. Full line of Conventional construction trucks completely covers the range from ½-ton pickups to this 25,000-lb. GVW dump.

ONLY GMC CONVENTIONALS GIVE YOU...

EXCLUSIVE V-6 ENDURANCE

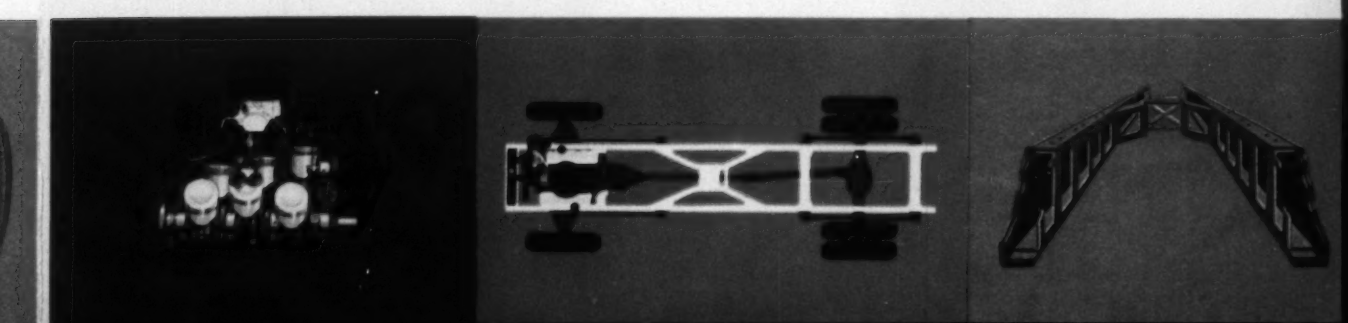
Now you have a potential of up to 200,000 miles without a major overhaul, with the proper maintenance and use. This is backed up by grueling, accurate engineering tests.

CUSTOM GEARING

With GMC Power-Mated drive trains, every component from the larger clutch to the high-strength axle shafts is properly sized and geared for your specific construction haul . . . balanced and built for increased durability.

SPECIALIZED STRENGTH

New X and K-type frame designs greatly increase torsional rigidity for reserve load-carrying ability. New, stronger, upright L-type reinforcements.



Trade Unions Take on a Selling Job

How professionals feel about AFL-CIO membership is one of the questions raised in two developments

The appeal of AFL-CIO union membership to professional engineers will soon be tested in New York and Philadelphia.

In New York, a National Labor Relations Board proceeding that developed out of the recent affiliation of Sperry Engineers Association with the AFL-CIO's International Union of Electrical Workers (ENR July 28, p. 82) has resulted in the scheduling of an election on the question of whether a majority of those represented by EA-IUE now wish that representation to continue.

And in Philadelphia, the test will come in the number of city engineers who join the American Federation of State, County and Municipal Employees, AFL-CIO, under the modified union shop clause included in the union's new labor agreement covering all of the city's non-uniformed workers.

The EA development at Sperry Gyroscope Co. is a standard decertification proceeding under section 9 of the Taft-Hartley Act.

It started with the filing of a petition for decertification by attorney Harry H. Rains of Long Island on behalf of 1,100 union and nonunion Sperry Workers represented by EA.

"The dissidents in the union, and those not in the union but in the bargaining unit, who bitterly resented the fact that nonunion members did not have an opportunity to voice their protest against affiliation with IUE have sought this means to get that right," Mr. Rains said.

The IUE affiliation had been approved by a majority of EA members. Those represented by EA but not members of EA did not vote. A clause in the EA labor contract calls for a vote by all members of the unit. An effort to prevent the affiliation on the grounds that nonmembers should have been allowed to vote failed in a court.

The decertification election will be held on September 8.

Actually, members of the EA unit have only two choices: to vote for no union, or to vote for representation by EA-IUE.

Charles Hall, president of EA, said last week he expects the vote to be in the union's favor. The preference for a union, rather than no union, he explained, is strong enough to overcome any objections that may exist to IUE.

In Philadelphia, AFSCME's District Council 33, which represents all of the city's 18,000 civilian employees except uniformed personnel, lost out in its bid to force professionals into the union.

Earlier, the union had sought a union shop clause (ENR Mar. 31, p. 83). This was opposed by some of the professional groups in the city. The compromise clause in the contract, which is expected to be approved by the City Council, make union membership compulsory for one category of workers, voluntary for another and prohibited for a third group. Majority of professional and white collar workers are in the voluntary group.

At present, some 10,500 of the city's workers are now members of the union.

A spot check among professional employees of the city's water, streets, property and license departments, where most engineering personnel are employed, indicates that no professionals have joined. A top echelon official of one department, himself an engineer, said he expects few of the engineering personnel to join. "Naturally you can expect to find a few," he added, "who will join when you have a couple of hundred workers in this category. The few who join will have their own personal reasons for signing up."

Union officials, who are not particularly optimistic about the value of the voluntary clause, said union membership would be "beneficial" to engineering personnel and that it would impose no restrictions or restraints, academically or professionally.

'Summit' Progress Is Slow

The idea of a "summit" conference on labor-management problems is still on the drawing boards although nine months have elapsed since AFL-CIO President George Meany first submitted the proposal to President Eisenhower.

The second in a series of exploratory meetings was held in New York City last week. The principals had a "friendly" discussion and were "cheerful" about the outlook, but they produced no decision on structure, no agreement on an agenda, and left the matter where it was before—still in the discussion stage. Another meeting of the steering committee will be held. The date has not been set.

The lack of progress is not surprising in view of what the conference is all about.

The idea, of course, originated during last year's collective bargaining deadlock in the steel industry, when the public's stake in labor-management disputes received wide attention. From many quarters came suggestions that the government step in and take over when the process of free bargaining fails.

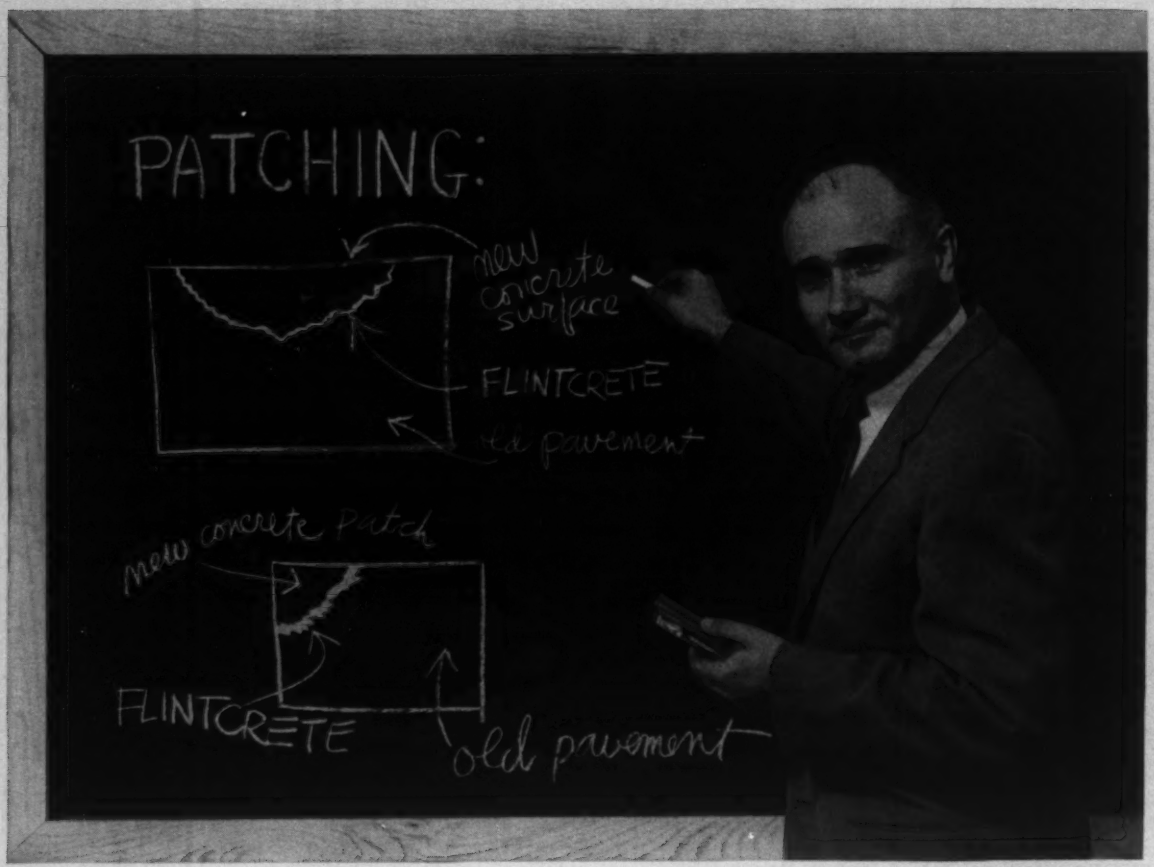
In an obvious effort to forestall this, Mr. Meany proposed that labor and management set up a conference under White House auspices to "consider and develop guiding lines for just and harmonious labor-management relations." More specifically, it was suggested that the conference engage in "a thorough examination and evaluation of the collective bargaining process." Primary objective would be preservation of a "free" and "responsible" collective bargaining system that "insures the continuous growth and prosperity of our economy."

An indication that a taller order could not be found lies in the fact that the whole idea leads directly into the big problems of wages, prices and employment security, which are part of the larger problems of economic expansion and the relative economic rights of labor, management and the public.

Dramatizing some of the reasons for the committee's slow progress are the presence on the steering committee of Walter Reuther, who heads the AFL-CIO's Economic Policy Committee, and three industrialists who come from the National Association of Manufacturers' side of the fence. One represents the philosophy of higher wages to expand consumer purchasing power to support full production at lower unit prices. The others, while not serving as NAM delegates, do represent the opponents of "wage inflation" and of the "monopolistic" bargaining power of unions.

Labor members on the steering committee, in addition to Mr. Reuther, are Mr. Meany and George Harrison, president of the Brotherhood of Railway Clerks. Corporation presidents named by NAM are L. A. Petersen of Otis Elevator Co., R. W. Stoddard of Wyman-Gordon Co. and William J. Grede of J. I. Case Co.

Chalk talk by paving specialist "Bob" Snyder on Flintcrete—
Flintkote's amazing new polysulfide/epoxy bonding compound...



"It's a fact! New Flintcrete* lets you do concrete patching never before possible."

"The secret's in Flintcrete's bonding power. It can bond concrete to concrete in a 'weld' up to 12 times stronger than concrete itself.
"This extremely high bonding strength really pays off when you're preparing existing concrete surfaces for repair. It's not necessary to remove the slab; only the unsound area need be cut away. And be certain you use a quality compound—the right one for the job at hand."

Flintcrete can be used for a wide range of other jobs too:

- bonding overlays to existing concrete surface
- bonding precast materials, markers, refractory brick
- skid-proofing pavements • surface sealing

We'll put you in touch with a qualified distributor or one of our Flintkote paving products representatives. He knows our full line and can help you.

*Trademark of The Flintkote Company

FLINTKOTE

Manufacturer of diversified products for home and industry.

Send today for complete technical literature giving grades available, application techniques and uses. Write: **The Flintkote Company, Paving Products Section, P. O. Box 157, Whippany, New Jersey**

Contractors Report Profit Drop

- **Competition, costs, weather take toll on earnings of four companies this year.**
- **One diversified concern reporting loss places most of blame on construction operations.**

Three construction companies last week reported that earnings in the first half dropped sharply from one year ago. A third company, widely diversified, but deriving a large part of its consolidated volume from construction, reported a first-half loss.

The earnings declines were registered by Arthur G. McKee & Co., Cleveland; Raymond International, Inc., New York City; and Warren Brothers Co., Cambridge, Mass. The loss was reported by Merritt-Chapman & Scott Corp., of New York City.

McKee's first-half net dropped 30% to $1.3 million, compared to $1.8 million one year ago. Raymond's earnings were down 32% to $1.5 million, as against $2.3 million, a year ago. Warren Brothers' net, excluding nonrecurring income, fell 48.3% to $240,743 compared to $466,198 last year. And MC&S reported a net loss of just short of $13 million, compared to net profit of $5.3 million last year. (Earnings figures reported here are net after taxes.)

Construction and shipbuilding were largely responsible for MC&S's first-half loss. (The company holds 76% of the stock in its subsidiary, New York Shipbuilding Corp., which registered a six-month loss of $3.6 million.)

Company officials said the Construction Department operated at an even larger loss in the second quarter of this year than in the first quarter. Major factors responsible for the department's poor showing were the Glen Canyon Dam project on the Colorado River in Arizona, and Priest Rapids Dam on the Columbia River in Washington.

Officers said the six-month strike at the $108-million Glen Canyon job is resulting in "costly after-effects" (ENR May 5, p. 27). Priest Rapids is now hitting hard at earnings because of loss of bonus and increased costs resulting from performance failure of generating equipment supplied and installed by a subcontractor (ENR July 7, p. 25). Up until October the company was 16 months ahead of schedule and ready to cash in on the bonus of $1,300 a day for every generating unit on the line before the end of the 1,900-day construction period. Trouble came April 25 when a transformer failed. It was shipped back to England by the subcontractor, English Electric Co. The other four units will be sent in relays to the company's plant for modification.

Also showing a downturn was MC&S's construction backlog, which currently totals $220.5 million compared to $298.2 million a year ago. This year's backlog includes the company's $60-million portion of the $121.8-million Chesapeake Bay bridge-tunnel (see p. 27). Others in this venture are Tidewater Construction Co., Norfolk, Va.; Peter Kiewit & Sons, Omaha, and Raymond International.

MC&S spokesmen say they anticipate progressive improvement and a return to a profit position. Estimates of the outlook have been adjusted to reflect recent cost increases, and intensive steps also have been taken to strengthen coordination of the firm's construction operations.

Raymond's earnings decline was attributed to two basic causes; reduced activity in industrial construction, which sharpened competition for contracts, and higher operating costs on special foundation jobs where unusual conditions were encountered. Henry C. Boschen, president, says the "improved results from foundation work should be realized in the near future from active expansion overseas and introduction of new and lower-cost methods."

Although earnings slipped, Raymond's backlog soared. In the first half of this year, the company obtained $106 million worth of new contracts. This put the backlog to $137 million as of June 30, a 65% increase over the start of this year.

This should result in earnings for the full year close to last year's level, with 1961 showing better earnings, according to Mr. Boschen.

McKee's report of a decline in earnings during the first half also was accompanied by an optimistic outlook. The backlog on June 30 totaled $66 million, compared with $43 million at the end of 1959 and $45 million on June 30, 1959. H. R. Moorhouse, executive vice president and treasurer, said the increase in backlog "creates a favorable long-term profit outlook, despite a drop in net income in the first six months. . ."

The drop in earnings had been anticipated "because much of the work on the company's books at the start of 1960 was of a long-term nature and therefore would not yield full profit potential this year."

The company expects that before the end of the year, "firm contracts of magnitude will be taken."

Warren Brothers' president, B. Howard Henderson, said weather early this year hurt operations, thereby cutting profit margins in the first half. Also, the slowdown in the Interstate program resulted in less available work and increased competition.

BPR Looks the Other Way

The U. S. Bureau of Public Roads apparently is willing to let the states prohibit the use of foreign-made road-building materials in federally aided highways.

For about two years, BPR has fought moves by the states that compel the use of only materials produced in the U. S. or its territories and possessions.

Indications of the final reversal came recently when BPR told the Texas Highway Commission that it has the right to insert "buy American only" clauses in its contracts.

Texas acted fast. The Highway Commission announced last week that starting in September, all contracts for highway construction will stipulate use of U. S.-made materials only, even Interstate contracts.

Until now, BPR ruled that states must accept foreign materials if they were cheaper than U. S. products. It did, however, keep postponing the effective date of the order when the states complained.

When the furor first started, fittingly enough, it was in Texas, which barred the use of foreign materials in 1958 (ENR June 13, 1958, p. 136). BPR then ordered the restrictive clauses removed from Interstate highway construction contracts (ENR July 31, 1958, p. 26).

Consultants' Volume Leaps in '59

New business of consulting engineers soared in 1959.

The 1,805 consultants who took on $100,000 or more in new heavy construction design last year (ENR July 21, p. 106), worked on 5,543 projects having a total estimated construction cost of $7.83 billion (see table). The number of projects was up 17% over 1958, and total dollar volume, 59%.

The big increase in available new work contributed to the 16% rise in the number of consultants in the $100,000-up bracket.

Dollar volume of new business climbed in every major category except private office buildings.

Biggest increase—62%—was in the other-than-building category. Big gainers here were waterworks, up 110%; earthwork-dams-waterways, up 62%; bridges, up 38%, and highways, up 21%.

There also were some big increases in new building design contracts. Dollar volume more than doubled in 1959 for public office buildings, shopping centers and stores. Mass housing volume doubled.

Industrial building, however, provided the biggest source of new business for consultants. Volume jumped 64% to nearly $1.3 billion.

Although sewerage engineering volume rose only 10%, the $864 million worth of new projects going into engineers' offices made up the second largest market for engineering services in 1959.

The "million-dollar" consultants took the lion's share of 1959's sharp rise in new proposed heavy construction. The record number of 895 consulting engineers in this bracket boosted their dollar volume 62% to $7.5 billion. This compared to a 21% dollar volume gain to $218 million for the 322 "middle" group firms and a 1% dip to $146.5 million for the 588 firms in the $100,000-$500,000 bracket.

The bigger gains for the million-dollar engineers mainly reflected the huge increases in waterworks, up 126% to $590 million; earthwork-dams-waterways, up 64% to $654 million; industrial building, up 66% to $1.2 billion; public office building, up 186% to $86.1 million, and shopping centers and other stores, up 168% to $123.5 million.

Industrial building was also a boon to consultants in the $100,000-$500,000 bracket. The 122 firms in this sector boosted industrial design volume 44% to $26.4 million.

Each volume-group scored sharply higher bridge design volume, although the million-dollar consultants handled $182.3 million of the total $188.2 million made available in 1959.

Sewerage design work was the biggest source of dollar volume for the medium and $100,000-$500,000 consultants.

Industrial building, however, topped other types of work going to million-dollar firms and mass housing projects also came ahead of sewerage as the major sources of new business.

Private office building design was the sole weak note among the million-dollar engineers. Volume skidded 41% in 1959 to a total of $101 million.

The middle group, however, boosted its private office volume, but the dollar value was relatively small. These engineers scored a 4% increase over 1958 with private office building design having a construction value of $5.6 million.

The $100,000-$500,000 group, on even slimmer volume registered an 8% decline with private office building design having an estimated construction cost of $1.2 million.

ENR's analysis is based on reports covering construction projects estimated to cost at least, or more than, the following:

- $53,000—waterworks and earthwork-dams-waterways.
- $88,000—other public works except buildings.
- $110,000—industrial buildings.
- $400,000—other buildings.

Design volume of public, industrial, military and A-power building rose 3% to $216.9 million. Of this, the $1-million-up consultants took $209.3 million for a 4% gain; the middle group got $5.5 million for a 10% gain. The $100,000-$500,000 engineers lost 50%.

Consultants Cut $7.8-Billion Pie

Type of Work	Number of Firms 1959	Firms % Change from '58	Number of Projects 1959	Projects % Change from '58	Dollar Value (millions) 1959	Dollar Value (millions) % Change from '58
TOTAL—ALL TYPES	1,805	+ 16	5,543	+17	$7,833.8	+ 59
TOTAL—OTHER THAN BUILDINGS	....	.....	3,550	+11	4,341.0	+ 62
Waterworks	400	+ 29	946	+25	625.3	+110
Sewerage	592	+ 20	1,398	+15	863.7	+ 10
Bridges	76	+ 21	88	+19	188.2	+ 38
Highways and streets	236	+ 19	346	+12	609.2	+ 21
Earthwork, dams, waterways	118	+ 20	135	—21	661.2	+ 62
Airports	137	+ 10	191	—20	305.2	+ 13
Unclassified	274	+ 5	446	+ 2	1,088.2	+297
TOTAL—BUILDING	....	.....	1,993	+29	3,492.8	+ 55
Industrial	395	+ 39	571	+59	1,282.4	+ 63
Mass housing, commercial and public, total	763	+ 27	1,422	+20	2,210.4	+ 51
Housing	267	+ 47	380	+46	855.9	+100
Schools	227	+ 14	396	+ 1	394.3	+ 12
Offices, private	60	— 14	68	— 3	107.8	— 39
Offices, public	27	+ 4	28	— 3	86.5	+169
Shopping centers & stores	86	+110	110	+83	133.1	+156
Public, industrial, military and atomic energy	89	+ 7	129	— 5	216.9	+ 3
Other buildings, private	159	+ 39	198	+37	191.3	+ 67
Other buildings, public	96	+ 43	113	+26	224.6	+128
Federal (included above)	156	+ 11	187	—34	584.0	+ 79

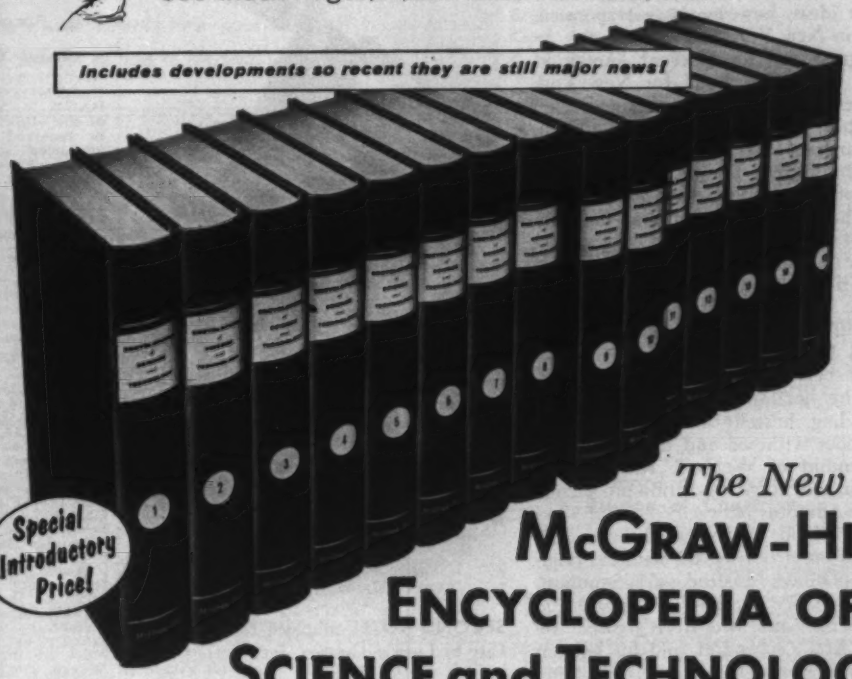
AN EXTRAORDINARY PUBLISHING ACHIEVEMENT OF OUR TIME!

Here Are the Many Fields Covered:

ACOUSTICS
AERONAUTICAL AIRFRAMES
AGRICULTURE & SOILS
ANIMAL ANATOMY
PLANT ANATOMY
ANIMAL SYSTEMATICS
ASTRONOMY
ATOMIC, MOLECULAR AND NUCLEAR PHYSICS
BIOCHEMISTRY
BIOPHYSICS
CHEMICAL ENGINEERING
ANALYTICAL CHEMISTRY
INORGANIC CHEMISTRY
ORGANIC CHEMISTRY
PHYSICAL CHEMISTRY
CIVIL ENGINEERING
COMMUNICATIONS
CONSERVATION
CONTROL SYSTEMS
CYTOLOGY
ANIMAL ECOLOGY
PLANT ECOLOGY
ELECTRICAL ENGINEERING
ELECTRICITY
ELECTRONICS
FLIGHT SCIENCE
FOOD ENGINEERING
FORESTRY
GENETICS & EVOLUTION
GEOCHEMISTRY
PHYSICAL GEOGRAPHY
SURFICIAL AND HISTORICAL GEOLOGY
GEOPHYSICS
GRAPHIC ARTS
GROWTH AND MORPHOGENESIS
HEAT
INDUSTRIAL AND PRODUCTION ENGG.
LOW TEMPERATURE PHYSICS
MACHINE DESIGN
MATHEMATICS
MECHANICAL POWER
CLASSICAL MECHANICS
METALLURGICAL ENGINEERING
METEOROLOGY AND CLIMATOLOGY
MICROBIOLOGY
MEDICAL MICROBIOLOGY
MINERALOGY AND PETROLOGY
MINING ENGINEERING
NAVAL ARCHITECTURE AND MARINE ENGG.
NUCLEAR ENGINEERING
OCEANOGRAPHY
OPTICS
PALEONTOLOGY
ANIMAL PATHOLOGY
PLANT PATHOLOGY
PETROLEUM CHEMISTRY
PETROLEUM ENGINEERING
GENERAL PHYSIOLOGY
PLANT PHYSIOLOGY
SOLID STATE PHYSICS
THEORETICAL PHYSICS
PLANT TAXONOMY
PROPULSION
PHYSIOLOGICAL AND EXPERIMENTAL PSYCHOLOGY
INVERTEBRATE ZOOLOGY

The Entire Span of Today's Scientific, Engineering and Technical Knowledge Encompassed in a Monumental Reference Work Containing 8,500 pages of Text, 800 Index Pages, 7,200 Articles and 9,700 Illustrations.

Includes developments so recent they are still major news!



Special Introductory Price!

The New

McGRAW-HILL ENCYCLOPEDIA OF SCIENCE and TECHNOLOGY

2,015 Contributors, including Nobel Prize Winners, Respected Leaders of Research and Industry . . . Over 6,000,000 Words — from Concise Articles to Amazingly Comprehensive Treatments . . . 100,000-Entry Index . . . a Wealth of Maps, Charts, Diagrams, Drawings, Photographs . . . many more than in any comparable work of reference.

AN epoch-marking publishing venture — providing up-to-date, authoritative information on all the sciences of our day — is being completed. The new McGRAW-HILL ENCYCLOPEDIA OF SCIENCE AND TECHNOLOGY will make readily accessible within its 15 volumes a vast fund of knowledge covering hundreds upon hundreds of subjects dealing with the whole spectrum of the physical sciences, life sciences, earth sciences, and engineering.

This major work fulfills a prime need of the scientist, the engineer, the technician — whether concerned with pure research or practical applications — whether his work is of a design or operating nature — whether he wants to review or keep abreast of the vastly enlarged knowledge of his own field or must bridge the gap between his specialty and unfamiliar areas into which his work leads him.

Unequalled in Timeliness, Clarity, Depth

This unique library makes it possible for you to have as near as your office, laboratory, plant, or home an all-knowing corps of specialists to which you can turn for precise, authoritative information. You can get answers to specific questions raised through daily professional activities or simply explore in a random way the universe of today's scientific, engineering, and technical knowledge — distilled into 7,224 comprehensive articles. Whatever your own field, whatever field your work is related to, you will find it here.

A Work of Unsurpassed Authority

The names of the contributors read like a "Who's Who" of the world's scientific community. All are recognized specialists — in many instances, articles were written by the very person credited with new discoveries and developments in a given field. Among them are Nobel Prize Winners and others who have distinguished themselves for their original and significant work.

Nothing comparable in breadth of conception, in authority, in usefulness, has ever before been offered in a reference work of this kind. As an all-embracing general reference or a practical working tool, this Encyclopedia belongs in the home and professional library of everyone with an interest in science and engineering. *An annual Supplement Volume keeps it always up to date.*

By reserving your first edition set now, you will enjoy the benefit of a special money-saving introductory price. Mail the coupon for full details.

MAIL THIS COUPON

McGraw-Hill Book Company, Dept. NR-8-11
327 West 41 Street,
New York 36, New York

Please send me without obligation your pre-view brochure on the new McGRAW-HILL ENCYCLOPEDIA OF SCIENCE AND TECHNOLOGY in 15 volumes; also details of your introductory price offer and terms of payment. (No salesman will call.)

Name.....

Address.....

City & Zone.....

State.....

NR-8-11

Hotel Plans Come and Go

Plans for new hotels are still popping —most of them in New York City. Some earlier ideas, however, have evaporated, both in New York and Detroit.

Biggest and most recent announcement of another hotel for New York City came this week from Loew's Theatres, Inc. and Laurence A. Tisch, chairman of that organization's executive committee. Loew's, continuing its diversification efforts, will build a 50-story hotel costing $50 million on Manhattan's West Side.

The announcement follows by slightly more than a month a construction-start by the same organization on a 21-story, $25-million hotel on the East Side (ENR June 30, p. 56).

But between the start of that one, and the heralding of the second, the expanding hostelry hopes of another developer withered and died. William Zeckendorf of Webb & Knapp, Inc., said that the huge excavation on Avenue of the Americas between 51st and 52nd streets would not be filled by a $60-million hotel bearing his name as originally planned. Instead, a $75-million, 42-story office building would fill the site. This confirmed ENR's earlier report. Mr. Zeckendorf sold his hole in the ground to Uris Brothers Building Corp., which will construct and own the office building.

Percy Uris, chairman of the company, says he has "under study" plans for a 38-story hotel on that avenue at 53rd St., only one block north of Mr. Zeckendorf's canceled venture.

In Detroit, Conrad Hilton and his Hilton Hotel Corp. killed plans for a $24-million, 22-story hotel, which was to have gone up next to Detroit's new municipal auditorium, Cobo Hall. Another venturer, however, has rushed in to fill the gap. A Detroit investment syndicate headed by William Gershenson says it is ready to negotiate for the construction of a $10-million hotel of 700 rooms.

While abandoning the Detroit project, however, the Hilton corporation, almost simultaneously was reaching agreement on a contract to build a hotel in Portland, Ore. The contract with Andersen-Westfall Co. of Portland calls for construction of a 22-story building at a contract cost of slightly more than $6 million. The company also reported the purchase of a site in Auckland, New Zealand, for a $9-million hotel.

The proposed 23-story building will be owned and operated by Chevron-Hilton Ltd. of Sydney, Australia.

The latest plans of Mr. Tisch in New York City are the largest to date in that city's drawing-board hotel boom. The 50-story structure, containing 2,000 rooms, would be about the tallest hotel in the world.

SECOND HOTEL proposed for New York City by Loew's Theatres, Inc.

Work is scheduled to start before the end of this year, probably in October. Completion is scheduled for May, 1962.

Work is under way on Loew's East Side hotel, which is scheduled for completion in October, 1961. It will contain 800 rooms.

Construction contracts for this one, and the one most recently announced, are held by Diesel Construction Co., Inc. of New York City.

Architects for both hotels are Morris Lapidus, Kornblath, Harle and Liebman of New York City. Consulting engineer for the larger hotel is Alfred J. Kleinberger. Structural engineers are Farkas and Barron and mechanical engineers are Rutherford Stinard and Associates. All are New York City firms.

With Loew's hotel venture actually under construction on the East Side, that organization will probably be the first to complete a hotel in New York City in 30 years.

Mr. Zeckendorf dropped from the roll, but still in contention is Louis J. Glickman of the Glickman Corp. His organization plans to construct a 21-story hotel overlooking the Hudson River between 42nd and 43rd streets.

OFFICIAL PROPOSALS

Bids: August 25, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 25th day of August 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

CONTRACT NO.	TYPE	NAME OF HIGHWAY & MILES
R.C. 60-162	Rehabilitating Thru Truss Bridge over the N.Y.C.R.R.	East Syracuse

DEPOSIT FOR PLANS	BID DEPOSIT	DEPT. EST.
$5	$4,500	$80,000

Any projects in this letting that are on Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956," being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the offices of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

District of Columbia—Bldg. Const.—Dept. of Bldgs. and Grounds, D. C., Aug. 1, 1960. CONSTRUCTION OF CHARLES H. HOUSTON ELEMENTARY SCHOOL, 49th and Lee Sts., N.E., Wash., D. C. (Invitation No. C-6125-B). Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Div., Procurement Office, D. C., Rm. 404, 499 Pa. Ave., N.W., upon deposit of a certified check for $75.00 per set, payable to D. C. Treasurer, (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 3:00 PM, EDT, Aug. 31, 1960, in Rm. 424, 499 Pa. Ave., N.W.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: August 25, 1960

Bayonne Bridge
Widening, Dividing & Lighting
New Jersey Approach

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M 603A

Sealed proposals for widening, the construction of a divider and lighting of the New Jersey approach to the Bayonne Bridge will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, New York, until 11:00 A.M. Thursday, August 25, 1960, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Administrative Services, which will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, August 11, 1960

Bids: August 31, 1960

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, New York, as follows:

Until 11 A.M. Wednesday, August 31, 1960

For Narrows Bridge Contract No. NB-5B-Brooklyn Anchorage. The bid must be accompanied by a deposit in the amount of $250,000.00.

and

For Narrows Bridge Contract No. NB-5S-Staten Island Anchorage. The bid must be accompanied by a deposit in the amount of $250,000.00.

The contracts include excavation and concrete construction, erection of steelwork furnished by others, surface roadway construction and other incidental work.

Bidders may submit bids for either one or both anchorages separately or they may submit a combined bid for both anchorages. If a combined bid for both anchorages is submitted, separate bids for each anchorage must also be submitted, in which case the total bid deposit required shall be $500,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $50.00 which will not be refunded.

Bids: October, 1960

Yanhee Multipurpose Project

Kingdom of Thailand
Royal Irrigation Department
Bangkok, Thailand

INVITATION FOR BIDS—NO. YS-4-9

The Royal Irrigation Department of the Kingdom of Thailand hereby invites sealed written bids for furnishing and delivering the following goods and materials either fob Contractor's shipping point or cif Bangkok Wharf, Thailand, for the Bhumiphol Power Plant, Yanhee Multipurpose Project, Kingdom of Thailand, in accordance with the Contract Documents, for:

Furnishing one (1) lot, structural steel for powerhouse roof; one (1) structural steel end wall, complete with corrugated asbestos sheet siding and fasteners; and three (3) structural steel and aluminum hatch covers and frames.

Invitations for Bids will be issued in August, 1960, and will be opened in October, 1960. Copies of Contract Documents, Invitation for Bids—No. YS-4-9, may be obtained by qualified Bidders on written request to:

Royal Irrigation Department
Attention: Thai Liaison Engineer
c/o Engineering Consultants, Inc.
1901 South Navajo Street
Denver 23, Colorado

Each request must be accompanied by a check or money order, payable to the Royal Irrigation Department, in the amount of U. S. $10.00 for each copy of the Contract Documents requested. The remittance is nonreturnable.

M. L. Xujati Kambhu
Director General
Royal Irrigation Department
Kingdom of Thailand
Bangkok, Thailand

Bids: August 31, 1960

New York State Road Work

NOTICE TO CONTRACTORS: THE NEW YORK STATE BRIDGE AUTHORITY, BRIDGE PLAZA, POUGHKEEPSIE, N. Y. Pursuant to the provisions of the Highway Law, and Article 3, Title 2 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 31st day of August, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith Office Building, Albany, N. Y., on behalf of said Authority, for the following project:

ORANGE COUNTY
KURT G. RAVER, DISTRICT ENGINEER, PLEASANT VALLEY ROAD, POUGHKEEPSIE, NEW YORK

NAME OF PROJECT & MILES	DEPOSIT FOR PLANS
Contract NBB. 60-1	$5.00
BID DEPOSIT	ENGR'S EST.
$240,000	$4,406,515.00

Newburg-Beacon Bridge over Hudson River
Contract No. 1—Substructure Piers 4, 5 & 6

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineer, noted above, and at the office of the State Department of Public Works, 270 Broadway, New York City, and may also be seen at the New York State Bridge Authority Office at Mid Hudson Bridge Plaza, Poughkeepsie, N. Y.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned to the Bureau of Contracts in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications.

Proposal must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the NEW YORK STATE BRIDGE AUTHORITY for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, and Public Authorities Law, as set forth in "Information for Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS
FOR NEW YORK STATE
BRIDGE AUTHORITY
DR. JOHN L. EDWARDS
CHAIRMAN

Bids: August 26, 1960

Board of Education
Bureau of Construction

Notice Re: Prequalification Forms for Contractors

APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT the Superintendent of Design, Construction and Physical Plant, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts.

For the General Construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures of:

Public School 30, Addition and Modernization, Brook Avenue and 141st Street, Borough of the Bronx.

New Public School 282, Berkeley Place and Lincoln Place and Sixth Avenue, Borough of Brooklyn.

The prequalification application form must be secured at the Bureau of Construction, Room 407, 42-15 Crescent Street, Long Island City 1, N. Y., and submitted to the Superintendent of Design, Construction, and Physical Plant at the same above address.

Bids when advertised, will be received only from prequalified bidders.

The time for submitting prequalification applications by contractors will expire on Friday, August 26, 1960.

JOSEPH R. WEISS
Superintendent of Design, Construction and Physical Plant.

Dated: August 4, 1960
JJF:dem
Starting: Saturday, August 6, 1960.
Five (5) days.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5381) will be received at Lewiston, California, until 1 p.m., Pacific Standard Time (2 p.m., Pacific Daylight Savings Time), September 15, 1960, for furnishing labor and materials for Spring Creek Power Plant, Trinity River Division, California, Central Valley Project. Location near Redding, California. Principal items are 147,800 cu. yds. excavation; 17,145 cu. yds. concrete; 775,000 pounds furnishing and erecting steel for powerplant superstructure; lump sum furnishing and installing steel penstocks; 10,400 cu. yds. excavation in tunnel; 2,400 cu. yds. concrete in tunnel lining; and other work. Completion time 800 days. For particulars, address Bureau of Reclamation, P. O. Box 2511, Sacramento 11, California; P. O. Box 247, Lewiston, California; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

OFFICIAL PROPOSALS

Bids: August 25, 1960

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 25th day of August, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany, New York						
Albany (Int. Tour. Rte. 787)	C 60-15	Interstate Rte. Conn. 540 (Rte. 9W to Green St.)	0.08	Demolition	$85 Plans $5	$1,500
Rensselaer (Rte. 154)	R.C. 60-54	Spring Ave: Troy-Poestenkill, S.H. 571	0.35	Asph. Conc. = 0.30 Mi. Misc. Work = 0.05 Mi.	$3,500 Plans $5	61,000
Schenectady	FATL 60-1	City of Schenectady: Crosstown Conn., Arterial Hwy. FAC 37-18 Schenectady Crosstown Conn. Pt. 2, S.H. FASH 57-20, Proj. U-323(19)	2.13	Electrical Lighting Facilities	$8,700 Plans $5	159,000
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Oneida (Rte. 12B)	R.C. 60-140	Oriskany Falls Village, S.H. 5385 Oriskany Falls-Deansboro, S.H. 5406 Deansboro-New Hartford, S.H. 761	5.76	Asph. Conc. Ty. 2A	$9,000 Plans $5	166,000
DISTRICT No. 3, E. E. Towlson, District Engineer, 333 E. Washington St., Syracuse, New York						
Onondaga	FATC 60-7	City of Syracuse: Bear Street Arterial Highway, FAC 59-4, Proj. U-1154(2)	0.82	Traffic Signals	$2,000 Plans $5	36,500
Onondaga (Int. Tour. Rte. 81)	FIC 60-17	Int. Rte. 505: City of Syracuse-Oswego Blvd. (Hiawatha Blvd.-North Salina St.) Proj. I-81-2(23)	1.42	Roadside Development	$4,000 Plans $5	77,000
Onondaga (Rte. 48)	R.C. 60-143	Baldwinsville Village: S.H. 1634 Baldwinsville-State Fair Grounds, S.H. 8496	4.51	Asph. Conc. Ty. 1A	$20,000 Plans $5	361,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal Rochester 1, New York						
Monroe (Rte. 65)	FARC 60-136 PSC 6015	Clover St., S.H. 294: Elimination of Grade Crossing of the New York Central R. R. (West Shore Branch) with Clover St., Proj. S-162(3)	1.17	Asph. Conc. Ty. 1A = 1.15 Mi.; Misc. Work = 0.02 Mi.; R.R.G.S. Comp. 1 Beam, 3 Sp., 147.8' 1 Plate Gird Bridge, 164.86'	$55,000 Plans $5	1,031,000
Monroe (Rte. 252)	FARC 60-137	Rochester-Scottsville, Pt. 2, S.H. 79 Ballantyne Bridge-Pittsford, Pt. 1, S.H. 8443 Proj. U-600(7)	0.52 (0.87 Acc.)	Cem. Conc. = 0.45 Mi.; Asph. Conc. = 0.46 Mi. Double Surf. Treat. = 0.23 Mi. 1 Br. Comp. 1 Beam 3 Sp. 224' Tot.	$40,000 Plans $5	742,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Cattaraugus	FAC 60-13	City of Olean: East-West Art. Hwy. (East State Street: Union Street to Barry Street) Proj. U-141(6)	0.14	Asph. Conc. Ty. 2A = 0.09 Mi. Misc. Work = 0.05 Mi.	$4,000 Plans $5	70,000
Chautauqua (Rte. 5)	R.C. 60-142	Southwestern Blvd, Pts. 9 & 10, S.H. 1852 Irving-Silver Creek, S.H. 5452	2.73	Asph. Conc.	$21,000 Plans $5	355,000
Niagara	FAC 60-3 FASH 60-1	City of Niagara Falls: Hyde Park Blvd. (Jerauld Ave. to Lockport Rd.); Hyde Park Blvd. (Lockport Rd. to Birch Ave.) Proj. U-UG-1128(4)	0.43	Asph. Conc. Ty. 2A = 0.37 Mi.; Misc. Work = 0.06 Mi.; R.R.G.S. Comp. WF Beam Bridge 343' Total span	$80,000 Plans $5	1,436,000
DISTRICT No. 6, Wm. J. Dennis, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Allegany Chemung Schuyler Steuben, Yates	R.C. 60-134	13 Various StateHighways in District 6 on Routes 13, 17, 21, 70, 70A, 228, 230, 364, 371, 408	32.84	Subsealing Cem. Conc. Pavt.	$16,000 Plans $5	296,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
Franklin (Rte. 30)	R.C. 60-139	Malone-Duane, Pt. 2A, S.H. 5668; Malone-Duane, Pt. 2B, S.H. 8085, Duane Center-Mountain Pond, S.H. 9007	9.08	Asph. Conc. Ty. 1A = 9.06 Mi. Misc. Work = 0.02 Mi.	$137,000 Plans $5	2,499,000
Jefferson (Rte. 12F)	R.C. 60-129	Cape Vincent-Watertown, Part 3, S.H. 1182	0.01	Asph. Conc. Ty. 1A Culv. Replacement	$1,100 Plans $5	20,000
Lewis (Rte. 26A)	FARC 60-135	Naumburg-Croghan, S.H. 1192 Lowville-Croghan, S. H. 1193 Proj. S-883(3)	1.78	1" Asph. Conc. Ty. 1A	$22,000 Plans $5	377,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Columbia (Rte. 22)	R.C. 60-133	Austerlitz-Flatbrook-New Lebanon, Pts. 1A & 1C Flatbrook-Massachusetts State Line, S.H. 8514	0.83	9" Cem. Conc. Pavt. 12' & 17'	$11,000 Plans $5	197,000
Orange (Rte. 17K)	FARC 60-131	Cochecton Turnpike, Pt. 1, S.H. 113 Proj. U-483(6)	0.64 (0.34 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var. = 0.80 Mi. Asph. Conc. Pavt. = 0.18 Mi.	$30,000 Plans $5	522,000
Orange (Rte 218)	R.C. 60-141	Cornwall-West Point, Pts. 1 & 2, S.H. 5498	2.99	Asph. Conc.	$9,000 Plans $5	160,000
Ulster (Rte. 28 to 9W)	FASH 60-6 S.H. 60-7	Kingston By-Pass, Part 2 (Route N. Y. 28 to Kingston-Rhinecliff Bridge Approach) Proj. FG-U-395(6)	4.32 (5.07 Acc.)	9" Cem. Conc. Pavt. = 6.84 Mi. Asph. Conc. = 0.87 Mi.; F.C. Gran. Mat. Ty. A = 0.26 Mi.; T.C. Gr. Grav. = 0.89 Mi. Grad. = 0.38 Mi.; Misc. Work = 0.15 Mi.; 4 H.G.S. Comp. 1 Beam, 3 Sp. 118.5'; 2 Sp, 189', 4 Sp., 179'; 4 Sp., 181.3'; 1 Br. Welded Pl. Gird.; 3 Sp.; 404'; 1 RRGS, Prestress, Conc. Beam 3 Sp., 150.8'	$445,000 Plans $10	8,086,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rte. 369)	FATS 60-13	Chenango Towpath, S.H. 175, Port Crane-North Fenton, S.H. 963, Proj. S-851(3)	6.09	Traffic Signs	$450 Plans $5	8,000
Schoharie	FASS 60-10	Lyker Road (Cr), Corbin Hill Road (Cr) Proj. S-577(1)	3.53	Bit. Double Surface Treat. Pavt.	$22,000 Plans $5	398,000
Sullivan (Rte. 17)	FATS 60-14	Bloomingburg-Monticello, Pt. 2, S.H. 5457 Bloomingburg-Monticello, Pt. 1, S.H. 5510 Proj. F-495(16)	11.52 (4.49 Acc.)	Traffic Signs & Delineators	$5,000 Plans $5	92,000
DISTRICT No. 10, A. M. Sarr, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Nassau (Rtes. 107, 27)	FARC 60-130	Massapequa-Glen Cove, S.H. 9017; Conduit Blvd. Pts. 3, 4, & 5, S.H. 1699A, 1699B, 5701A Proj. US-377(6); Proj. U-947(21)	5.27	Roadside Development	$3,000 Plans $5	56,000
Nassau	LP 60-1 MSP 60-1 WSP 60-2	Loop Parkway Meadowbrook State Parkway Wantagh State Parkway	....	Repairs and Misc. Work at 9 Bridges	$17,000 Plans $5	293,000
Nassau & Suffolk (Rte. 27 & 110)	FARC 60-138	Conduit Blvd., Pt. 5, S.H. 5701A; Sunrise Highway Extension, Pts. 1, 2, 2A, S.H. 8474, E8438, 8470 Amityville Village: Broadway, S.H. 1633 Proj. U-UG-947(19)	4.59 (3.40 Acc.)	9" Cem. Conc. Pavt. = 7.31 Mi.; Asph. Conc. = 0.36 Mi.; Misc. Work = 0.32 Mi.; 1 RRGS Pl. Girder 138.9' 2 HGS Comp. Alum. 4 Sp., 220.1'; 220.1'; 1 HGS-Comp. 1 Beam 4 Sp., 212.5'	$375,000 Plans $10	6,839,000
Nassau & Suffolk (Rts. 24A, 107; 109, 110)	FATS 60-15	Hempstead-Farmingdale, Pts. 3 & 4, S.H. 9055, 9064; Maywood-Babylon, S.H. 53-2, 1841; Farmingdale-Maywood, S.H. 9077; Massapequa-Glen Cove, S.H. 9017; Huntington-Amityville, Pts. 1 & 2, S.H. 794, 1219; Huntington Town Line-Farmingdale, S.H. 1218 Proj. U-297(6); U-985(10); US-377(5).	23.61	Traffic Signs	$7,500 Plans $5	137,000

(Continued on following page)

OFFICIAL PROPOSALS

OFFICIAL PROPOSALS

(Continued from preceding page)

OFFICIAL PROPOSALS

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
Suffolk	FASS 60-11	Nicholls Road, CR 97 Proj. S-871(2)	3.12	Asph. Conc. = 3.06 Mi. Misc. Work = 0.06 Mi.	$77,000 Plans $5	1,400,000
Suffolk	FALIE 60-2	Long Island Expressway, Contract 9 (Pinelawn Road to Deer Park Avenue) Proj. U-862(27)	3.47 (5.17 Acc.)	9" Cem. Conc. Pavt. = 4.34 Mi.; Asph. Conc. Pavt. = 4.20 Mi.; Misc. Work = 0.10 Mi.; 4 H.G.S. Comp. Beam 4 Sp., 274.1'; 4 Sp., 236.2'; 4 Sp., 261.2'; 4 Sp., 204.7'	$251,000 Plans $5	4,560,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956," being Public Law 627, 84th Congress, approved June 29, 1956, are are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Law, as set forth in "Information for Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: August 25, 1960

Road Work

NOTICE TO CONTRACTORS

Sealed proposals, addressed to STATE OF MISSOURI, acting by and through THE STATE HIGHWAY COMMISSION OF MISSOURI, Jefferson City, Missouri, and endorsed "Proposal" for constructing (or improving) Route I-70, Project I-70-5(55), City of St. Louis County, will be received by the Commission until 10:00 o'clock A.M., on the 25th day of August, 1960, at the office of the Commission in the State Highway Building at Jefferson City, and at that time will be publicly opened and read.

The proposed work includes:

Furnishing and installing five (5) units of movable median, each unit consisting of 14 cars and operating equipment, together with any incidental work, on the above state road known as the Mark Twain Expressway in the City of St. Louis, Missouri.

The wage rates applicable to this project have been predetermined as required by law and are set forth in the proposal.

By virtue of statutory authority, preference shall be given to materials, products, supplies, provisions, and other articles, produced, manufactured, made, or grown within the State of Missouri, where same are of a suitable character and can be obtained at reasonable market prices in the State and are of a quality suited to the purpose intended, and can be secured without additional cost over foreign products or products of other states.

Plans and specifications may be inspected in the offices of the Commission at Jefferson City, or the District Engineer at Kirkwood, Mo. Complete instructions to bidders and proposal blanks may be obtained at the Jefferson City office.

Proposals must be on forms provided.

The right is reserved to reject any or all bids.

REX M. WHITTON,
Chief Engineer.

Bids: See Advertisement

The Port of New York Authority

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract EP-110.006—Elizabeth-Port Authority Piers—Berth 50—Dredging—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, August 30, 1960.

Contract EXD-120.078—Port Authority Building—Painting in Room 1115—No deposit required—Bids will be received until 2:30 P.M. on Tuesday, August 23, 1960.

Contract LGA-310.015—LaGuardia Airport—Temporary Control Tower and Utility Buildings—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, August 30, 1960.

Contract PN-620.001 — Port Newark — Building 117—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Wednesday, September 7, 1960.

Contract documents may be seen at the office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115 where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, August 11, 1960

District of Columbia—Hwy. Const.—Dept. of Highways & Traffic, D. C., July 25, 1960. CONSTRUCTION OF WASHINGTON CHANNEL BRIDGE SUPERSTRUCTURE, BRIDGE #1113, Federal Aid Interstate Project No. I-95-1(28)1. Invitation No. C-6115-H, consisting of 8,283,200 lbs. of Weldable Structural Carbon Steel and 5,775 cu. yds. Class BB Concrete (Wage rates have been predetermined by the Labor Dept. and will be incl. in Add. #1). "Pre-bid meeting will be held to answer questions of bidders on the project on Aug. 18, 1960, 2:00 PM, EDT, Rm. 500, Dist. Bldg., 14th and E Sts., N.W., Wash., D. C." Bid forms, plans and specifications are now available from Supv., Bid & Contract Div., Procurement Office, D. C., Room 404, 499 Pa. Ave., N.W., upon deposit of a certified check for $30.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 3:00 PM, EDT, August 30, 1960, in Rm. 424, 499 Pa. Ave., N.W.

Bids: October 17, 1960

Signal Contract SGI
Bloor-Danforth-University Subway

TORONTO TRANNSIT COMMISSION
TENDERS FOR

Sealed tenders endorsed "Signal Contract SGI Bloor-Danforth-University Subway" and addressed to the Toronto Transit Commission, General Secretary's Office, will be received by the Commission at its office, 1900 Yonge Street, Toronto 7, Ontario, Canada, until four (4) p.m. Eastern Daylight Saving Time (three (3) p.m. Eastern Standard Time) on Monday, October 17th, 1960.

The work for which tenders are invited consists of providing and installing block signal and interlocking equipment for approximately 12,000 feet of subway as specified in the contract documents and shown on the contract plans.

All tenders must be on the Commission's form of tender and must be accompanied by cash or a certified cheque in the amount noted in the Tender and Contract Requirements.

The successful tenderer will be required to furnish, execute and deliver to the Commission a performance bond satisfactory to the Commission in the amount and within the time set out in the contract documents.

The contract documents, including plans and specifications, will be available at the Commission's Subway Construction Branch, 1138 Bathurst Street, Toronto, on and after Tuesday, August 2nd, 1960. Copies of the contract documents may be obtained by depositing one hundred dollars ($100.00) with the Commission for each set of documents. The amount of the deposit will be refunded on the return of the plans and specifications in good condition within thirty (30) calendar days after the opening of the tenders.

The Commission reserves the right to reject any or all tenders.

No tender may be withdrawn after the scheduled closing time for receipt of tenders for forty-five (45) calendar days.

H. E. PETTETT
General Secretary

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5380) will be received at Fargo, North Dakota, until 10 a.m., Central Standard Time, September 15, 1960, for furnishing labor and materials for stringing conductors and overhead ground wires for Bismarck-Jamestown 230 kilovolt transmission line No. 2, Transmission Division, North Dakota, Missouri River Basin Project. Location in Burleigh, Kidder, and Stutsman counties, North Dakota. Principal items are 99 miles of line furnishing and stringing three 954,000 circular mil, 45/7, ACSR conductors; 99 miles of line furnishing and stringing two ⅜-inch galvanized steel overhead ground wires; and other work. Completion time 210 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 1993, Fargo, North Dakota; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5379) will be received at Clinton, Oklahoma, until 10 a.m., Central Standard Time, September 13, 1960, for furnishing labor and materials for Foss Pumping Plants Nos. 1, 2 and 3, Foss Division, Oklahoma, Washita Basin Project. Location near Clinton, Oklahoma. Principal items are 11,150 cu. yds. excavation; 665 cu. yds. concrete; lump sum constructing pumping plant superstructures; lump sum furnishing and installing steel intake and discharge manifolds; and other work. Completion time 760 days. For particulars, address Bureau of Reclamation, P. O. Box 1609, Amarillo, Texas; P. O. Box 146, Clinton, Oklahoma; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

EMPLOYMENT OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per in. for all adv. appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

UNDISPLAYED RATE:

$2.40 per line, min. 3 lines. To figure advance payment count 5 aver. words as a line.
Position Wanted ads take 1/2 of above rate.
Box numbers—count as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Field Supervisor. Large established midwest consulting firm has permanent position in building construction supervision for thoroughly qualified and experienced man. Mechanical engineer preferred. Moving expenses paid. Send complete resume to P-4833, Engineering News-Record.

Madison, Wis. Community Planner IV. $7,-668-$9,900 including longevity salary increases. Graduation from an accredited university with specialization in Civil Engineering, Architecture, Landscape Architecture or Planning and at least 4 years experience in planning. Possess ability to give high-level advice on complex problems in field of planning; in addition requires a working knowledge of platting regulations, land survey practices and precise mapping techniques, as well as of the engineering aspects of development. Registration or qualification for registration as a professional engineer and land surveyor desirable. Considerable experience in dealing with public groups essential. To be responsible for directing current planning activities of city planning department including processing of zoning changes, administration of platting regulations, and supervision of mapping section. Personnel Department, 404 City-County Building, Madison 9, Wisconsin.

Redevelopment Authority, Madison, Wis., Community Planner II $6,132 to $7,692. College graduate with major in architecture, city planning, economics, engineering, geography, landscape architecture, law, public administration, or sociology with courses in accounting plus at least two years' experience in urban renewal planning or in fiscal or accounting affairs of planning projects. Primary responsibility is to assist the director in the design of projects, formulation of research studies and surveys, and planning and controlling the fiscal and accounting affairs of the projects. U. S. Citizenship required. City Personnel Department, 404 City-County Building, Madison 9, Wisconsin.

Materials Engineer wanted by Eastern Consultant. Broad experience required in testing and control of highway materials. Some actual field supervision of highway construction desirable. Must be graduate and have or be able to get professional license. Salary commensurate with age and experience. Complete information, please, in first letter. Reply P-4895, Engineering News-Record.

Graduate Civil, Industrial or Mechanical Engineer to train for responsible position with fast growing building material firm, age 21-35. Write P.O. Box 231, West Palm Beach, Florida.

Teaching and Research Assistantships are available to qualified students while working for M. S. or PH.D. degree in either solid or fluid mechanics. Write, Chairman, Dept. of Engineering Mechanics, University of Kansas, Lawrence, Kansas.

Public Works Director—Rapidly growing prestige residential suburb, 30,000 pop., Midwest. Graduate, registered Civil, with heavy street construction and maintenance experience, plus administrative experience and decision making ability, required. Will act as Ass't City Manager. $11-12,000. P-5014, Engineering News-Record.

Estimator—experienced highway and heavy construction work. Proved ability to expedite and coordinate work on hand. Established Long Island Contractor. Write P-5043, Engineering News-Record.

Sales Manager—For fast growing pre-fab metal building fabricator. Experience in same or closely related field necessary. Exceptional opportunity. Submit resume to P-5051, Engineering News-Record.

• POSITIONS VACANT

Heavy Construction Estimator with sufficient background to assemble complete estimates on dam, tunnel and heavy industrial work. Headquarters Cleveland. P-5049, Engineering News-Record.

Park Engineers—For challenging assignments with the N. Y. State Conservation Department. Salary $6410-$7760 with many fringe benefits. Requires one year in design and construction of parks and parkways and five additional years of pertinent education and/or experience. For details write Recruitment Unit, Civil Service Dept., Box 50-C, State Campus, Albany, N. Y.

Experienced Resident Engineer wanted for half-million dollar sanitary sewerage system and treatment plant. Project to start immediately and will last approximately ten months. Furnish resume of qualifications (including experience, references, salary desired, and when available) to Doctor James C. White, Secretary, Town of Milton, Milton, Delaware.

Superintendent for multi-million dollar project in Washington, D. C. Must have at least 20 years experience and graduate engineer preferred. Project will last at least two years. Salary open for right party. Give experience, age, education and references; they will be kept confidential. Also advise when you will be available. P-5031, Engineering News-Record.

• POSITIONS WANTED

Chief Estimator-Project Manager — Fully qualified to handle work from bidding stage to completion. Best of references. Building Construction, Heavy Construction, Sewage and Water Treatment Plants PW-5011, Engineering News-Record.

General or Project Superintendent, Mature, Sober, Aggressive, over 35 years experience, Bridges, Industrial foundations, cofferdams, caissons, concrete roads and grading. Now employed on multi-million expressway as general superintendent, an immediate change is desirable. Minimum $12,000.00 PW-5017, Engineering News-Record.

Engineer-Superintendent 51, CE P.E. (Penna.) good experience in all phases of general construction, highways, dams, water supply, heavy earth and rock, development housing, concrete structures. 4 years in Carribean Area. Capable of taking complete control, estimating, purchasing, hiring subs, owner negotiations. Presently self employed. U.S.A. min. $9,000, O.S. $12,000. George W. Berry, 1009 Sycamore Circle, Elmira, New York. Ph. REgent 2-0512.

P.E.—BSCE—Lic. Bldg. Contr., Age 33; Desires responsible pos'n as Project Engr., Tech. Rep., or Sales Engr.; Exp.: 4 yrs. struct. design engr., 4 yrs. hvy. & lt. bldg. const. supv. and contracting. Fla. resident. Will relocate. PW-5002, Eng. News-Record.

Civil Engineer; A.M. ASCE; B. CE.; M.S.C.E.; Four Years experience foundation engineering; materials testing; will relocate; Southeast. PW-4887, Engineering News-Record.

Prestressed Concrete — Structural Engineer seeks responsible position in S.E. United States or Florida. 11 yrs. experience in sales engineering, management, structural concrete design and testing. Have pilots rating to facilitate travel for right company. PW-4965, Engineering News-Record.

Executive-Engineer—twenty-five years corporate engineer with major process companies, in charge of profitability analysis, cost estimating, site planning, project scheduling, contract negotiation, construction supervision and cost control. M.S. in Civil Engineering. On-time completions, good start-ups, minimum costs. PW-4942, Engineering News-Record.

Superintendent—33 years experience. Commercial & Industrial bldgs—schools—hospitals. Want to relocate. PW-4753, Engineering News-Record.

• POSITIONS WANTED

Resident Engineer. Proj. Mgr. 41. BSCE. Reg. Airport, tunnel, industrial, buildings. Domestic or foreign. PW-4948, Eng. News-Record.

Structural Engineer, P.E. Thoroughly experienced in institutional, commercial and industrial Bldg's. Desires associatjon with architectural firm as Chief structural engineer. PW-4999, Engineering News-Record.

Engineering Executive. Wide industrial, chemical and civil experience; all phases administration and management. Organize and direct large design jobs or work in consulting and exec. asst. capacities. Proposals, reports, contracts, liaison, trouble shooting, P.E. in 5 States. PW-4725, Engineering News-Record.

Project Management, Contract Administration, 22 yrs. experience includes, estimating, purchasing, procedures, field supervision, costs, claims. Major heavy-constr. projects U.S. & O.S. PW-4933, Eng. News-Record.

Ass't. Const. Supt. with mining company desires work with growing construction company west coast. PW-4379, Engineering News-Record.

Field Auditor or General office accountant. 35 years experience. Will relocate. PW-4205, Engineering News-Record.

Engineer—34, BSCE 1950. Two years building inspection. 8 years with heavy construction contractor. Preference: Docks & water work. PW-5033, Engineering News-Record.

Construction Manager B.S.C.E. Registered P.E., 30 years experience responsible charge heavy construction foreign field, mainly Latin America. Experienced in estimating, costkeeping, design and supervision. Available short or long assignments. PW-5047, Engineering News-Record.

Marine Construction Engineer B.S.C.E. 37 years old, married, will travel anywhere. Available Sept. 1st. PW-5030, Engineering News-Record.

Sanitary Engineer—20 years experience, mostly responsible charge administration and direction large staff on reports, design and construction supervision. Desire responsible position university, government or consulting preferably West, South or abroad. Salary open dependent upon position and location. PW-5044, Engineering News-Record.

Civil Engineer, M.S., 27, management training, structural experience, desires position with future administrative opportunities. PW-5050, Engineering News-Record.

Civil, Structural Engineer, American, PE, 10 years experience civilian and military, design and construction in U. S., Europe, Asia. Seeks responsible position abroad. Now in Paris. PW-5054, Engineering News-Record.

Project Manager, Sup't., Estimator Piping, Instrumentation, Mat'ls. Handling, Heavy Industrial. Aged 43, 20 years in any phase invitation to turn key. Seeks management spot with future unlimited. Prefer West of Rockies. PW-5023, Engineering News-Record.

Purchasing Agent now with major firm seeks relocation. Extensive background in estimating, supervision and project managership. Top responsibility required. Will come for interview. PW-5024, Engineering News-Record.

Bridge, Structural & Highway Draftsman. Eventually can be designer. 10 years experience. (Civil Engineer in old country). PW-5028, Engineering News-Record.

ENGINEERS DESIGNERS

Permanent positions with Arthur G. McKee & Company at their Cleveland offices for:

ENGINEERS, DESIGNERS, DRAFTSMEN

who are experience in any type of Steel Plant or Steel Plant Equipment design. Applications will be kept confidential.

Send detailed resume and photo to:

G. VICTOR HOPKINS
ARTHUR G. McKEE & COMPANY
2300 Chester Ave. Cleveland 1, Ohio

• POSITIONS WANTED

Grad. Sanitary & Structural Eng. Over 10 yrs. field & office consulting exp. on all types of sanitary projects. Will relocate for opp. for prof. advancement. PW-5021, Engineering News-Record.

Contractor's General Handy Man. B.S.C.E. Good organizer. 15 years experience—supervision, field-office engineering, layout, take off, estimating, cost control, purchasing. Prefer midwest location with medium size organization engaged in industrial work with growth potential and possibility of profit sharing. Would consider small investment. PW-5039, Engineering News-Record.

ESTIMATOR, OFFICE ENGINEER

Experienced in commercial & industrial building construction. Permanent position with progressive contractor. North central Connecticut.

P-4926, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

WANTED

Architects office needs an ADMINISTRATOR OF PARTNERSHIP STATUS. This man must be experienced in all phases of construction, estimating, negotiating and contracting. He formerly has run his own business or been a major executive. This is a permanent position.

BERTRAND GOLDBERG ASSOCIATION
721 N. Mich. Ave. SU 7-8622, Chicago 11, Ill.

CIVIL ENGINEER

State of New Jersey

Opportunity in BUDGET BUREAU, Department of the Treasury
(1) to determine the necessity and advisability of appropriation requests for replacements, special repairs, and additions or improvements;
(2) and to make evaluations on a continuing basis of construction needs, alternative solutions, priorities and conformity with appropriation intent.

Civil engineering degree required. At least four years of construction work experience and/or mechanical engineering. Combinations of education and experience considered. Permanent Civil Service position with fringe benefits. Salary open. Anxious to fill vacancy immediately. Please send resume and salary requirement to

Chief, Administrative Division,
Department of the Treasury,
State House, Trenton, New Jersey.

SELECT
Contractor Associate

wanted by
RESPONSIBLE
International Engineering
Company
with
GLOBAL ACTIVITIES
Min. investment
$100,000.
Fully secured by
Real and Tangible Assets

Wire or phone

Norman S. Brooke, *Vice-Pres.*
GUARDIAN TRUST COMPANY
Montreal — Canada
Victor 2-8251

THIS EMPLOYMENT OPPORTUNITIES SECTION offers a quick, effective solution to your manpower problems. Because its readership is confined to just the type of men you need, waste circulation is avoided.

ENGINEERS
FOREIGN ASSIGNMENTS

Positions open to Experienced Engineers with B. S. in Civil Engineering in following fields:

Irrigation—
Project Planning
Irrigation—
Detail Design
Flood Control
Hydrology

Housing for dependents and schools available. Please send complete resume including past salaries to:

INTERNATIONAL
ENGINEERING COMPANY, Inc.
74 New Montgomery Street
San Francisco 5, California

GRADUATE CIVIL or ARCHITECTURAL ENGINEERS

We are looking for a young, recent college graduate, with a degree in either architectural or civil engineering, for a position in our El Paso, Texas—Estimating Department. This position provides a training ground for our future superintendents and executives. It is an excellent opportunity for a young man to obtain a desirable position with a reliable firm doing all types of construction work.

ROBERT E. McKEE
GENERAL CONTRACTOR, INC.
PO BOX 562 EL PASO, TEXAS

EXECUTIVE MECHANICAL ENGINEER

Architects office needs administrative engineer for challenging and interesting work. Must be experienced in pipe trades and air handling, for hi-rise buildings to head mechanical engineering department.

Experience required in estimating, negotiating and contract administration. This work is an important part of our professional success, and only well educated men of superior record and capacity will be considered. Permanent position.

BERTRAND GOLDBERG ASSOCIATION
721 N. Mich. Ave. SU 7-8622, Chicago 11, Ill.

ENGINEERS

Permanent openings for qualified

CIVIL

Several openings for experienced persons in design of structural steel and reinforced concrete applicable to design of Bridges and Buildings. Opening for Sanitary major in design of sewage and waste disposal systems.

ELECTRICAL

Need several in the design and layout of Power Plants, Test Facilities, Industrial and Institutional projects.

MECHANICAL

Several openings for men experienced on Process Piping design and layout, preparation of Flow Diagrams, and cost estimates.

Also openings for Designer-Detailers and Draftsmen.

Positions open to Engineers desiring long range employment with opportunity for professional development. Many company benefits, including paid vacations, sick leave, holidays. Excellent employee benefit plan.

Write fully, include complete experience and salary data.

SVERDRUP & PARCEL
ENGINEERING COMPANY
Engineers — Architects
915 Olive St., St. Louis 1, Mo.

WANTED

ENGINEERING ASSOCIATES

SANITATION WATER SUPPLY
(foreign & domestic)
PETROLEUM (foreign)
GEOLOGICAL & MINING (foreign)
CHEMICAL & PETRO-CHEMICAL
(foreign and domestic)
WATER RESOURCES (foreign)
HYDRO-ELECTRIC (domestic & foreign)
CONSTRUCTION (domestic & foreign)
President and Vice-President levels.
Complete charge of your own division.
Drawing account against substantial share of Division profits before tax PLUS income from own secured investment.
Minimum Investment $25,000.00
GLOBAL Activity—TOP Recognition

Send complete resume including photo to:

P. O. Box 968,
Station "B", Montreal, Quebec

PURCHASING AGENT-DETAIL MAN

Expediter, knowledge road construction supply field to handle expediting, purchasing other detail work. Opportunity with growing sales organization located Union City, N. J. Details first letter.

P-4924, Engineering News-Record
Class. Adv. Div., P.O. Box 12, NY 36, NY

SEARCHLIGHT SECTION

CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vert. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.
WILSON *Engineering Corp.*
College House Offices HARVARD SQ. CAMBRIDGE, MASS.

CONSTRUCTION SUPERVISION
Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.
National Schools of Construction
Est. 1932
Satsuma, Florida

FOR SALE
Tunnel Equipment & Utilities
Headframes; Hoists; Compressors; Generators; Locomotives; Muckers; 60# Relay Rails; 4", 6", 8", 26" Naylor Spiralweld Pipe; etc.
West Delaware Tunnel Constructors
Livingston Manor, N. Y.
Phone: Livingston Manor 500

2 SEA WATER DISTILLATION PLANTS
With 1 yrs. Supply of Spare Parts
1—500 Ton Capacity per day.
1—270 Ton Capacity per day.
Only operated for 1 year.
Original value $600,000.
To be sold at approx. 60% cost.
FS-4798, Engineering News Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

PILE DRIVING EQUIPMENT

VULCAN AND McKIERNAN-TERRY
Steam Pile Hammers and Extractors

- **DROP HAMMERS**
- **DRIVING CAPS**
- **HOISTS AND BOILERS**
- **STEEL LEADS**
- **PILE DRIVER HOSE**
- **STEEL SHEET PILING**

CONMACO, INC.
DRexel 1-3930
820A KANSAS AVE.,
KANSAS CITY, KANS.

PILING
SURPLUS NEW and USED **For Sale, Wanted or Rent**

NORTH–SOUTH, *EAST or WEST*

LOW RATES · FAST SERVICE · RENT, SELL OR BUY · NEW AND USED · SINCE 1933 · H-BEARING PILE · PILE HAMMERS · NATION-WIDE STOCKS · ANY QUANTITY · ALL SECTIONS · ALL LENGTHS

STEEL SHEET PILING by DIALING
Call St. Louis Collect
CHestnut 1-4474

PILE DRIVING EQUIPMENT AT YOUR FINGER TIPS

MISSISSIPPI VALLEY EQUIPMENT CO.
1908 Railway Exchange Bldg.
St. Louis 1, Mo. CHestnut 1-4474

H & SHEET STEEL PILING
3700 PCS. BETH. SP6A, 50' 56' & 48' & 40' & 35'
1900 PCS. MP112—12', 25', 35', 40', & 60'
2800 PCS. BETH.—AP3 20', 25', 30', 35', & 60'
2500 PCS. BETH.—DP2—31', 35', 40', 50', 60'
1200 PCS. ZP38-ZP32—25', 36', 50', 60' & 65'
1400 PCS. BP8, BP10, BP12—BP14—55' to 60'
600 PCS. BETH. ZP27—25', 30', 50' & 60'
500 PCS. 15' Corrugated Piling
PILING BOUGHT—SOLD—RENTED
STOCKS: N. Y.—BOSTON—BUFFALO TORONTO—BALTIMORE—JACKSONVILLE MIAMI—RICHMOND—NEW ORLEANS
DIESEL LOCOMOTIVES & CRANES
12—Gen. Elec. 100, 80, 65, 45, 25 & 23 ton
25 Ton Industrial Loco Crane, 60' Boom
20 TON STIFF LEG DERRICK
1—AH&D, 40' Mast, 96' Boom, 16' BW
R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.
Telephones MU 2-3075 or MU 2-1898

1500—H BEARING PILES
8" 36 lb. 10" 42 lb. 12" 53 lb. 14" 73 lb.
Stocks: Buffalo, N. Y., Baltimore, Md., Albany, N.Y., Newark, N. J., Jacksonville, Fla.
R. C. STANHOPE, INC.
Tel. MU 2-3076 or 2-1898
60 E. 42nd St. N. Y. 17, N. Y.

High Speed in 6x6's
NEW ISSUE TRUCKS
GMC! MACK! REO "Eager Beaver!"
• *Tandem Axle* • *Front Wheel Drive*
For specifications, prices, delivery, write
MEMPHIS EQUIPMENT COMPANY
P.O. Box 2852, Dept. E., Memphis, Tenn.
NATION'S LARGEST ARMY TRUCK DEALER!

For Sale: DRAGLINES—SHOVELS—CRANES
All makes and models, ½ yd. to 35 yd.
EUCLIDS: Rear, Bottom Dumps and Scrapers
Other equipment available not listed above
William Lubrecht, III Construction Equipment
311 W. Diamond Avenue, Hazleton, Pa.
Gladstone 5-4041 5-0253

FOR RENT OR SALE
1—#8 Industrial Brownhoist Locomotive Crane, diesel power, 35-40-ton Serial #11192
2—45-ton G.E. diesel electric locomotives, std. ga.
1—25-ton G.E. diesel electric locomotive, std. ga.

ECA
EQUIPMENT CORPORATION OF AMERICA
Box 608-J, Clifton Heights, Pa.
Box 43-J, Coraopolis, Pa. (suburb of Pittsburgh)

P&H 10-12 ton Truck Crane, heavy duty clam bucket, backhoe and extras, nearly new, $13,750.00. Bargain.
C-16 Michigan Backhoe, 1952, best condition. $5,500.00.
GENERAL EXCAVATING COMPANY
Beltsville, Maryland

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

TRANSITS & LEVELS
Various Makes
NEW & REBUILT
Fully equipped modern shops — all makes and models repaired — all work guaranteed — prompt service — complete line field supplies.
INSTRUMENTS RENTED
Midwest Distributors for W. & L. E. Gurley and Wild Heerbrugg Instruments
NATIONAL BLUE PRINT CO.
Established 1910
210 S. Canal St. Chicago (6), Ill.

RAILS-TIES
TRACK ACCESSORIES

MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W.VA.

PIPE

Surplus New & Used

FOR SALE, WANTED OR RENT

BIG SAVINGS ON PIPE!

Immediate Shipments from Warehouse Stocks

Limited Service Electricweld and A-252 Grade 2

12¾" x .188 Wall 12¾" x .281 Wall
10¾" x .188 Wall

Plus

24" x .312 Wall Limited Service and A-252 Grade 2

20" x .312 Wall Limited Service and Structural Grade

These Double Random Length items are specially priced to offer you big savings. Available in large quantities, they're particularly suitable for medium pressure lines, and for structural applications such as pipe for piling, building columns, etc.

Also Immediate Delivery

PRIME TESTED ELECTRICWELD LINE PIPE API 5L

10¾" x .188 Wall 6⅝" x .156 Wall
6⅝" x .219 Wall 8⅝" x .188 Wall

Write, wire or phone for latest Stock List

L B FOSTER CO

Pittsburgh 30 New York 7 Chicago 4 Houston 2
Los Angeles 5 Atlanta 8 Cleveland 35

Items Listed Subject to Prior Sale.

Call: HYACINTH 7-4900

PIPE, VALVES & FITTINGS

PILING • CULVERTS

ASBESTOS-CEMENT PIPE • ALUMINUM PIPE

ALBERT PIPE SUPPLY CO., Inc.

103 VARICK AVE., BROOKLYN 37, N.Y.

ASSOCIATED PIPE & FITTING CO., INC.

PILING PIPE SHELLS MANDREL FITTINGS	"H" BEARING PILE SLEEVES AND SHOES	K & M ASBESTOS CEMENT PIPE	CULVERTS CIRCLE ARCH SECTIONAL

262 RUTHERFORD BLVD., CLIFTON, N.J. • PR 3-8400

DAVIDSON

PIPE SUPPLY CO. INC.

Seamless and Welded Steel Pipe
Fittings, Valves, Pipe Fabricating

Call GEdney 9-6300
50th St. & 2nd Ave., B'klyn 32, N. Y.

When you need

PIPE . . . fast

use this section, as many contractors do, as a pipe buying directory. It can save you time when you want to know, quickly, where to buy good new or used pipe.

HEAVY CONSTRUCTION EQUIPMENT

For Sale or Rental

EUCLID

Five 25 FDT-58W, 13 yd. bottom dumps
Three 14TDT-122W, 17 yd. bottom dumps
Four S-7, 7 yd. overhung engine scrapers
Three 8TDT-14SH, 15½ yd. tractor scraper units
Four 14TDT-21SH, 15½ yd. tractor scraper units
Four S-18 22 struck yd. scrapers

COMPRESSORS AND DRILLS

Gardner-Denver 85'-125'-365'-600'-900' Portable Rotary Compressors
10—Gardner-Denver air tracs, std. and hyd. booms, 12' feeds, DH123J drills
3—Gardner-Denver FL58-4 air leg drills
1—Ingersoll-Rand 60' compressor
1—Sullivan 315' compressor. Hand held sinker drills, paving breakers, one triplex tamper

COMPACTION EQUIPMENT

Bros R67W pneu. tired towed rollers (13 wheels)
Bros SP54B self-propelled pneu. tired roller (10 ton)
Bros and Vibro-Plus vibratory rollers and compactors
Bros M2-7 double drum tamping rollers (40" x 48")

MISCELLANEOUS

2—9B3 McKiernan-Terry pile hammers, 1-10B3
2—Allis-Chalmers 1952 HD20H tractors with push blocks
1—Barber Green bucket loader
1—Clyde PBT50' builders tower with hoist
1—Rogers 20 ton tagalong trailer
2—White half tracks
1—Caterpillar D8 tractor with blade
2—Buffalo-Springfield 10 ton, 3 wheel rollers
2—Seaman-Andwell pulvi-mixers DS-47
1—Lorain TL20 basic crawler
1—Unit 514 with backhoe
1—Cummins diesel engine—generator set 25KW.
4" and 6" centrifugal pumps
1—3½ yd. Erie clamshell bucket
1—H2 Bucyrus Erie hydrocrane on international body
2—DW21 15 yd. scrapers

Subject to prior sale or disposition call, write, wire or phone

L. B. SMITH, INC.

357 W. Fayette St. Syracuse, N. Y. *Phone: GR 5-2196*

FOR SALE

VENTILATION EQUIPMENT

Located New York City

Mechanical and electrical equipment for large ventilation system consisting of:

20—American Blower Corp. Centrifugal Fans

20—G. E. Induction Motors
Type K, 208V, 3ph, 60 cycle. Ratings as follows:
8—50/16/2.5 HP—900/600/300 RPM
2—32/4.1 H.P.—900/450 RPM
10—52.5/6.6 H.P.—900/450 RPM

Complete with Texrope drives, motor starting cabinets, magnetos for fan speed indication and damper motors and controls.

FAN DATA

Quantity	Type	Volume Per Fan (cu. ft. per min.)	Static Pressure (in. of water)
6	Down Blast	120,400	2.12
4	" "	166,000	1.25
4	Up Blast	110,000	1.37
3	" "	125,000	2.00
3	" "	167,600	1.25

To be sold as a lot for removal by purchaser.

The system is to be discontinued in 1961. Approximately half of the equipment will be available about May, 1961, the balance about September, 1961. It is considered by owner to be in excellent condition; however, purchaser must rely on his own inspection.

Subject to Prior Sale—*For further information write:*

FS-4921, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

PROFESSIONAL SERVICES

Layne-New York Co., Inc.

Test Borings ● Core Drilling
Grouting ● Drilled Shafts
Water Wells ● Water Treatment
150 Denton Ave., New Hyde Park, N.Y.
431 Market St., Camden, N. J.
1250 W. Elizabeth Ave., Linden, N. J.
15 Ryder St., Arlington, Mass.
5655 Bryant St., Pittsburgh 6, Pa.

MIDDLE ATLANTIC

Howard, Needles, Tammen & Bergendoff

Consulting Engineers
Bridges, Structures, Foundations, Express Highways
Administrative Services
Kansas City - Cleveland - New York

E. Lionel Pavlo

Consulting Engineer
Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports
642 Fifth Ave. New York 19, N. Y.

Lawrence S. Waterbury

Consulting Engineer
Bowling Green 9-9298
26 Broadway New York 4

Steinman, Boynton, Gronquist & London

Consulting Engineers
HIGHWAYS - BRIDGES - STRUCTURES
117 Liberty St., New York 6, N. Y.

THE CONSULTING ENGINEER

By reason of special training, wide experience and tested ability, coupled with professional integrity, the consulting engineer brings to his client detached engineering and economic advice that rises above local limitations and encompasses the availability of all modern developments in the fields where he practices as an expert.

Severud-Elstad-Krueger-Associates

Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Ave., New York 17, N.Y.

Lockwood, Kessler & Bartlett, Inc.

Consulting Engineers
Civil Engineering Investigations and Reports, Design and Construction Supervision of Bridges, Highways, Pipelines, Expressways, Industrial Buildings, Sewerage, Airports and Municipal Improvements, General Site Engineering, Seismic Subsurface Investigation, Cadastral, Geodetic & Topographic Surveys, Photogrammetric Engineering & Mapping.
One Aerial Way, Syosset, New York
Bogota, Colombia San Juan, P. R.

Modjeski and Masters

Consulting Engineers
Bridges and other Structures
Foundations
Highway and Expressways
900 North Sixth St. Harrisburg, Pa.
Philadelphia - Miami - New Orleans

The Kuljian Corporation

Engineers • Constructors
WE DESIGN AND CONSTRUCT
Power Plants • Public Works • Processing Plants • Oil Refineries • Chemical Plants • Textile Plants • Airport Facilities • Military Installation
1200 N. Broad St., Philadelphia 21, Pa.

Michael Baker, Jr., Inc.

Consulting Engineers, Civil Engineers, Planners & Surveyors; Airports & Highway Design; Water Works & Sewerage Design & Operation; Aerial Topo Maps; Surveys; Reports & Investigations; Irrigation. Home Off.—Rochester, Pa. Br. Off.: Jackson, Miss.; Harrisburg, Pa.; College Park, Md.

Buchart Engineering Corp.

Consulting Engineers
Highways — Bridges — Sewer Systems
Surveys — Water Works — Dams —
Reports — Supervision — Industrial
Municipal — City Planning — Structures
55 S. Richland Ave., York, Pa.
Lancaster, Pa. Washington, D. C.

SOUTH

Rader and Associates

Engineers - Architects
Sewage Disposal, Water Works, Ports, Airports, Bridges, Highways, Office and Commercial Buildings, Industrial Plants, Reports, Investigations, Consultations, Aerial Photography, Photogrammetry.
First Nat'l Bank Bldg., Miami 32, Fla.

MIDDLE WEST

Consoer, Townsend & Associates

Consulting Engineers
Sewage treatment, sewers, storm drainage, flood control—Water supply and treatment—Highway and bridges—Airports—Urban renewal—Electric and gas transmission lines—Rate studies, surveys and valuations—Industrial and institutional buildings.
360 East Grand Ave. Chicago 11, Ill.

Roy B. Everson

S.E. Consultant Since 1900
For Purification Systems as applied to Sewage Treatment, Water Works and Swimming Pool Circulating Systems.
A New System for Automatic Control
211 W. Huron St. Chicago 10, Ill.
Phone SUperior 7-2339

Sargent & Lundy

ENGINEERS
Consultants to the Power Industry
Studies • Design • Supervision
140 South Dearborn Street, Chicago 3, Ill.

Toledo Testing Laboratory

Engineers—Chemists
Concrete—Soils—Asphalt
Inspection Research
Tests Development
Foundation Investigation
Borings — Diamond Drilling — Load Tests
Soils Mechanics Laboratory
1810 North 12th St. Toledo 2, Ohio

AERIAL SURVEYS

Aerial Map Service Co.

Topographic, Planimetric, Photo Maps for Highways, Mining, Resources, Construction, City Maps, Tax Maps, Photo Geology, Tellurometer Radio Distance Measurements, Triangulation, Electronic Computation.
1016 Madison Ave., Pittsburgh 12, Pa.

American Air Surveys, Inc.

AERIAL TOPOGRAPHIC MAPS & AERIAL PHOTOS FOR
• Highways • Airports • Power & Pipe Lines • Railroads • Mining • All types construction • Stockpile Inventories
907 Penn Ave. Pittsburgh 22, Pa.
Branches-Manhasset, N.Y.-Atlanta, Ga.

REMEMBER!!

You can depend on these consultants for a fast accurate solution to your problems. Consult them when necessary.

CONSULT THESE SPECIALISTS...

When you need professional assistance in solving difficult problems. Their specialized knowledge and broad experience can prove invaluable in saving both time and money for you.

Engineering News-Record invites other consultants to list the special services they offer on these pages.
Rates for the Professional Services section are:

	PER WEEK		
	13 times	26 times	52 times
¾"—$14.35	$13.35	$12.45
1½"—$23.85	$22.30	$21.00

SEARCHLIGHT
Equipment Locating Service

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate Surplus new and used Engineering and Construction equipment not currently advertised. (This service is for USER-BUYERS only). No charge or obligation.

How to use: Check the dealer ads on pages 108 & 109 to see if what you want is not currently advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, New York

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, N. Y.

Please help us locate the following equipment:.....

.....

Name..... Title.....

Company..... Street.....

City..... Zone.... State.....8-11-60

CLASSIFIED ADVERTISERS INDEX

Albert Pipe Supply Company..... 109
Associated Pipe & Fitting Company.. 109
CONMACO, INC. 108
Department of the Treasury..... 107
Equipment Corporation of America... 108
Foster Company, L. B..... 109
General Excavating Company..... 108
Goldberg, Bertrand Asso..... 107
Guardian Trust Company..... 107
International Engineering Company, Inc. 107
Lubrecht III, William..... 108
McKee & Company, Arthur G..... 107
McKee General Contractor, Inc., R. E. 107
Memphis Equipment Company..... 108
Midwest Steel Corporation..... 108
Mississippi Valley Equipment Company 108
National Blue Print Company..... 108
National Schools of Construction..... 108
Smith, Inc., L. B..... 109
Stanhope Inc., R. C..... 108
Sverdrup & Parcel Engineering Company 107
West Delaware Tunnel Constructors.. 108
Wilson Engineering Corp..... 108

ADVERTISERS IN THIS ISSUE

Acker Drill Co., Inc. 68
Air Placement Equipment Company 111
Alexander Hamilton Institute 37-39
Allis-Chalmers 78-79
American-Marietta Co. 33
American Sisalkraft Corp. 87
Armco Drainage & Metal Products, Inc. 40-41
Atlas Copco 50

Beaver-Advance Corp. 53
Bethlehem Steel Co. 1, 45, 71-74
Bower Roller Bearing Div., Federal-Mogul-Bower Bearings, Inc. 56
Charles Bruning Co., Inc. 16
Bucyrus-Erie Co. 14-15

Chicago Pneumatic Tool Company, Reichdrill Div. 10
The Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div. 48-49
Concrete Reinforcing Steel Institute 80
Crane Co. 12-13

Dorr-Oliver, Inc. 62
Richard Dudgeon Inc. 62

Ellicott Machine Corporation 52
Erie Strayer Company 24
Euclid Div., General Motors Corp. 64-65

The Flintkote Company 98
L. B. Foster Co. 2

GMC Truck & Coach Div., General Motors Corp. 91-96
W. & L. E. Gurley 47

Harbert Construction Corp. 111
Homelite Div., Textron Inc. 69
Hose-McCann Telephone Co., Inc. 70
Hyster Company 11

Inland Steel Company 60-61

C. S. Johnson Company 5

Kern Instruments Inc. 81
Koppers Company, Inc., Tar Products Div. 66

Lock Joint Pipe Co. 22

Mack Trucks, Inc. 54-55
Manitowoc Engineering Corp. 58
Manitowoc Shipbuilding, Inc. 68
Marion Power Shovel Co. 34-35
McGraw-Hill Book Co., Inc. 101
Mobile Drilling, Inc. 83
Mueller Co. 77

Penn-Dixie Cement Corp. ..... 2nd Cov.
Phoenix Bridge Company 62
Posey Iron Works, Inc. 111

Rockwell-Standard Corp., Brake Div. 9

Seismograph Service Corp., Seiscor Div. 67
Sika Chemical Corporation ..... 3rd Cov.
Sikorsky Aircraft Div., United Aircraft Corp. 6-7
Spencer, White & Prentis, Inc. 46
John W. Stang Corp. 70

Thompson Pipe and Steel Company 83
Thorp Sales Corporation 8
The Timken Roller Bearing Co. ..... 4th Cov.

United States Fidelity & Guaranty Co. 21
U. S. Rubber Co., Mechanical Goods Div. 26
U. S. Rubber Co., Tire Div. 63
U. S. Steel Corp. 17-20, 84-85
Universal Form Clamp Co. 4
Universal Sewer Pipe Corp. 3

Watco Div. of Plant City Steel Corp. 80

Professional Services 110

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities ..106, 107
Business Opportunities 88
Notices
Proposals 102, 103, 104, 105
Equipment
(Used or Surplus)
(For Rent, Sales Wanted) ...108, 109
Advertisers' Index 110

THE "AIR EXTRUSION" METHOD
Means Lower Concrete Costs

AIRPLACO CONCRETE PLACERS

Whether it has been used to convey or distribute structural concrete to hard-to-get-to pours, for tunnel lining, pressure grouting, for open pours, blowing sand or pea gravel backfill, or for transporting concrete to common receiving bins . . . the AIRPLACO Concrete Placer has consistently meant more concrete in place with savings in time and labor. The new "Air Extrusion" method of concrete placement gives you up to 35 cu. yds. of good concrete per hour.

AN OFFER FOR YOU! AIRPLACO's Engineering Staff is at your service. When you have a job calling for concrete, call on AIRPLACO. Through many years of experience on many types of jobs, we can help by recommending methods and techniques that will cut your costs, increase your profits. There is no obligation, of course. Write, wire or phone.

CONCRETE PLACER

CONCRETE GUNS

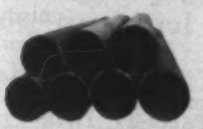
MIX-ELVATORS

GROUTERS

SAND BLASTERS

AIRPLACO AIR PLACEMENT EQUIPMENT CO.
1007A WEST 25TH ST. • KANSAS CITY 8, MO.

POSEY WORKS FOR BETTER—
LARGE O.D. STEEL PIPE



¼" to 1½" plate to 84" O.D.
Mild steel, high carbon, high manganese steel, wrought iron, stainless steel, stainless & nickel clad pipe to AWWA, ASTM, ASME Spec.

For FREE 16-page illustrated catalog, write:

Custom Fabrication For Over 50 Years

DIVISIONS:
• Iroquois Asphalt Plants • Mixers and Blenders
• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe

561 S. PRINCE STREET LANCASTER, PA.

HARBERT

BUILDING FOR . . .
A GROWING AMERICA

HARBERT CONSTRUCTION CORPORATION
BIRMINGHAM, ALABAMA

Caveat Emptor

ONLY TIME WILL TELL whether affiliation with trade unions will promote or impede the professional objectives of engineers in the Sperry Gyroscope union that recently joined the AFL-CIO's International Union of Electrical Workers (ENR July 28, p. 82).

Although such a move is still unorthodox for professional engineers, it is not unprecedented. Several other engineering unions have preceded Engineers Association into the ranks of the IUE. EA, however, is somewhat special since it was one of the founders of Engineers and Scientists of America and spearheaded the union group that sought, through Engineers and Scientists Guild, to form a national federation of unions representing, and exclusively serving, the needs of engineering and scientific personnel.

The gamble that EA now has taken with the professional aspirations of its members has them hanging on a thin thread, indeed. If the thread breaks, EA's professionals may fall into an equalizer that has neither the inclination nor the ability to concern itself with their professional advancement. All hope for preserving the identity of engineers and their problems has been pinned on the operation of engineering councils within the AFL-CIO.

In theory, these councils are run by and for the engineers who will be isolated from, yet strengthened by, the mainstream of the trade union movement. But theory is often a far cry from practice. And IUE President James Carey may have been quite premature in hailing the EA affiliation as the dawn of a "new era" in relations between professional engineers and trade unions. In the last analysis, the fate of these professionals now aligned with the AFL-CIO will depend on their capacity and willingness to do for themselves if the current efforts to decertify the union fail (see p. 97).

Unfinished Business

A COMPARATIVELY NEW public relations problem is plaguing highway agencies in various parts of the country, particularly in cities. The problem: What do you tell the long-suffering motorist who, fighting traffic on congested city streets, looks up to see a beautiful new elevated highway or bridge, apparently finished and ready for use, but not connected to anything?

One example of such unfinished business is a $12,750,000, one-mile elevated section of Bruckner Expressway in New York City. Complete, but unusable because it "ends in the air," this segment will not be open to traffic until 1963, when an adjacent section will be finished.

Another potential situation of this type is in Pittsburgh, where they say the new Fort Duquesne Bridge may become a "$5-million parking lot" when finished next year. Construction of approaches has not begun because of two separate squabbles. On one side, delay is due to a trolley franchise disagreement; on the other, the disputed location of a connecting freeway.

There are other such cases, and the motorist's reaction is easy to predict. He simply feels that somebody goofed—the engineer, contractor, or just anybody—and he doesn't like it. His tax money is going for new highways, and how come this bit of foolishness?

The answer of the highway engineer or contractor is an easy one. Because of the enormous cost of these projects ($80 million for seven miles of the Bruckner Expressway), it is simply not possible to have enough money available at one time to do the whole job. The unfortunate truth is that this answer will do little to relieve the motorist's irritation.

He may ask why isn't there enough money to do the thing right? One answer is that highway improvement is a political process; that motorists (who also vote) elsewhere in the state want their share of new highways, too. This he may understand, but it is not likely to make him happy.

We're not suggesting that there is any really satisfactory answer. But we do suggest that officials who control highway programming take a hard look at the image this sort of thing creates in the public mind, and avoid it whenever possible. And if it still happens, that the public relations department anticipate public reaction and provide whatever answers they can in advance.

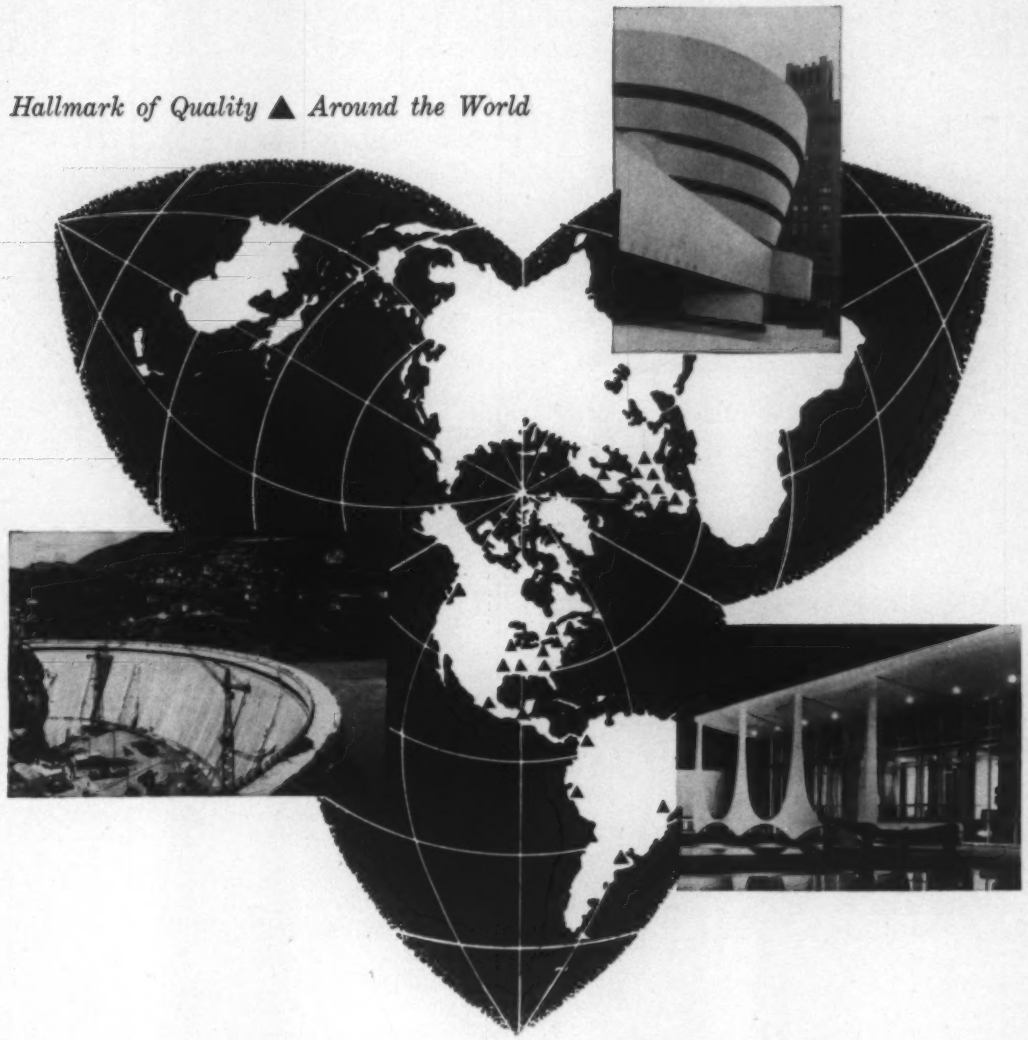
A Challenge in Mr. Haggerty

THROUGH NEIL HAGGERTY, subject of this week's cover story (p. 88), labor and management in the construction industry can improve their approach to some of the labor problems that have plagued the industry for so many years. For beneath his deep dedication to the labor movement, the new spokesman for three million AFL-CIO construction workers harbors a conviction that the key to labor-management progress lies not in animosity, but in mutual trust, respect and understanding.

The list of issues calling for a calm, logical approach is long. And all the issues—including wages, wasteful work practices, jurisdictional frictions, national agreements, safety, training—go to the heart of labor costs in which the stakes are high in all areas of construction.

Mr. Haggerty offers the construction industry a challenge as new spokesman for its labor. He cannot be looked to for miracles since the nature of his assignment removes any possibility of his dictating to the building trades. But he can exert labor leadership of a highly beneficial kind if he has cooperation from construction management and the industry's local labor groups. In Neil Haggerty, the industry has a real challenge.

Hallmark of Quality ▲ Around the World



Progress in modern concrete technology has given architecture wings. Dramatic new shapes brighten the structural face of the free world.

Partner in this progress, and notable in its achievements, has been Kaspar Winkler & Co. of Switzerland, this year celebrating its 50th anniversary. Its researchers have developed more than a score of products to modify effectively the characteristics of concrete. Sika Chemical Corporation and the 14 other independent manufacturing companies, located on three continents, proudly salute the accomplishments of the first Sika Company on its anniversary.

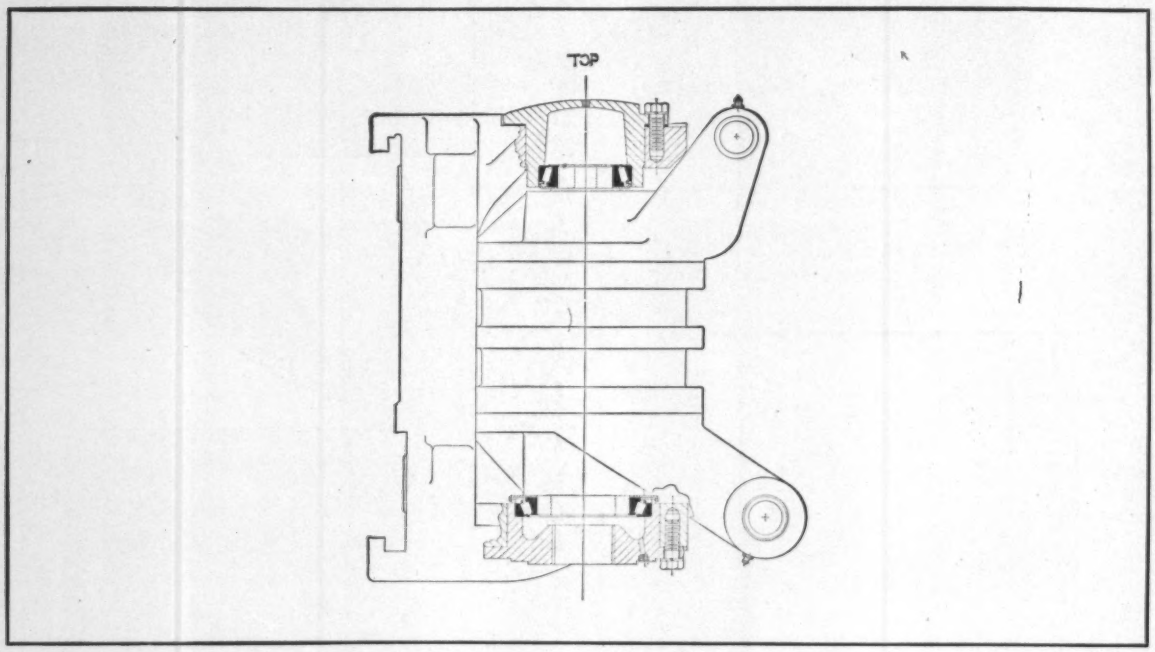
Sika

PLASTIMENT RETARDING DENSIFIER • IGAS JOINT SEALER •
RUGASOL • SIGUNIT • SIKA QUICKSETS • INTRAPLAST

SIKA CHEMICAL CORPORATION

Passaic, N. J.

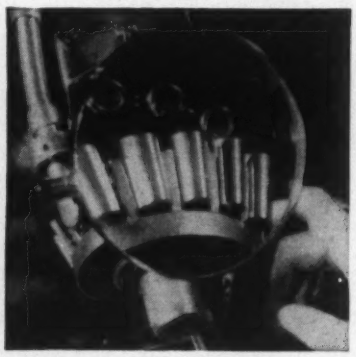
How John Deere assures better boom action, cuts maintenance in "51" Backhoe



To assure extra ruggedness and better boom action in their "51" backhoe, John Deere engineers designed the pivot shaft with Timken® tapered roller bearings at both upper and lower ends (above). This design requires unusual rigidity because the swing cylinder is integral with the pivot shaft. Timken bearings help provide this rigidity. And they have the high load-carrying capacity needed in trench-digging and excavating machines.

Construction equipment builders have depended upon Timken bearings for more than 40 years because: 1) Their taper lets Timken bearings take heavy radial and thrust loads in *any* combination. 2) Timken bearings hold shafts concentric with their housings, making closures more effective in keeping lubricant in, everything else out. Maintenance is reduced. Machines work steadier, longer.

ENGINEERING SERVICE ON-THE-SPOT. Often our graduate engineer salesmen can solve your bearing problems right in your shop or at the drawing board, save you time, money.



ROLLERS ARE INSPECTED under a powerful lens. A minute surface flaw, outside our standard of manufacture, will cause rejection. It's another way we assure quality.

Industry rolls on

TIMKEN®

tapered roller bearings

The Timken Roller Bearing Company, Canton 6, Ohio. Cable: "TIMROSCO". *Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits.* Canadian Div.: Canadian Timken, St. Thomas, Ont.